

April 22, 2022

Via Email/Sharefile

Ms. Julia Galayda NJ Department of Environmental Protection 401 East State Street Trenton, New Jersey 08625

Re: Response to Comment Letter – Pre & Post Closure Groundwater Sampling Plan for AOC 3: No. 1 Landfarm (January 26, 2022)
Hess Corporation Former Port Reading Complex (HC-PR)
750 Cliff Road
Woodbridge, Middlesex County, New Jersey
NJDEP PI# 006148
ISRA Case No. E20130449
EPA ID No. NJD045445483

Dear Ms. Galayda:

Earth Systems, Inc. (Earth Systems) has prepared this letter on behalf of Hess Corporation (Hess) regarding the January 26, 2022 Comment Letter provided by New Jersey Department of Environmental Protection (NJDEP) relating to the *Pre & Post Closure Groundwater Sampling Plan for AOC 3: No. 1 Landfarm* submitted on August 25, 2021.

#### NJDEP Comments & Earth Systems/Hess Responses

**NJDEP Comment 1:** July 9, 2018, Department Letter – Comments on Section 6.4: The Department provided comments regarding the No. 1 Landfarm on July 9, 2018. These comments, especially Section 6.4, should be considered in the sampling plan and should be attached in the correspondence documentation. A copy of the comment letter is attached to the email correspondence.

**Earth Systems/Hess Response 1**: The July 9, 2018 comments have been reviewed and are addressed in this response (including both the responses below and the leachate

sampling addendum attached to this letter). A copy of the July 9, 2018 comments has been included with this response for reference purposes (See **Addendum A**).

**NJDEP Comment 2:** Regulatory Background: It is the Department's understanding that the No. 1 Landfarm did not operate under interim status but was a RCRA Part B permitted unit before it received wastes. This should be clarified but is not critical to the review of the sampling plan.

**Earth Systems/Hess Response 2**: As per the USEPA's Envirofacts website, the landfarm's "Legal Operating Status" is listed as "Interim Status" for 1980 and 1983 and "Permitted – Inactive/Closing, But Not Yet RCRA Closed" in 1997. The description of the No. 1 Landfarm can be changed to, "Permitted – Inactive/Closing" for future report submittals. Please advise as to how the Department would like the No. 1 Landfarm referenced.

**NJDEP Comment 3:** Conceptual Site Model: A CSM specific to the No. 1 Landfarm area is needed that considers the information likely to influence the ground water monitoring program and interpretation of the results, such as:

- Range of tidal fluctuation at the No. 1 Landfarm in the North Ditch and at monitor wells
- Ground water surface water interaction at peak high tide, peak low tide
- Variations in ground water flow conditions that need to be considered in sample collection time
- If it was determined that the North Ditch does not receive ground water recharge at peak low tide, please discuss how this was determined. The higher ground water elevations compared to the surface water elevations provided on the contour maps indicate that ground water would discharge to surface water.
- For future reference, the construction drawings from the November 1, 2019 response to comments should be included with the ground water sampling plan as an appendix, along with the well construction records and boring logs from the Well Manual, and the 2018 Key Environmental boring locations and logs.

**Earth Systems/Hess Response 3**: The North Drainage Ditch, identified as Area of Concern (AOC) 104, will be investigated as a separate AOC and as part of the Sitewide ecological investigation. The information requested above (such as groundwater to surface water discharge evaluation and tidal stages) will be evaluated and addressed as part of that investigation. All information identified as needed above will be addressed in that investigation, but not as a stand-alone CSM for this specific AOC. As discussed below in Response 8, an investigation workplan will be submitted for review prior to conducting any investigation activities for the North Drainage Ditch.

The requested documents (a copy of the approved Remedial Action Design and well records/logs) have been included with this submittal.

**NJDEP Comment 4:** Monitor Well Locations - New: Existing wells are included in the sampling plan. The existing wells are screened across the water table (except BG-2 and BG-3, and sometimes SP-3, which are in upgradient areas). However, based on the more recent contour maps (copies attached), most wells are in upgradient to side-gradient locations relative to the treatment areas of the landfarm.

L1-2 and L1-3 are about 50' away from the treatment area limits within the outer berms and are on downgradient flow paths from portions of the treatment areas. The wastewater management units (manhole, oil/water separator, oil sump, leachate sump) located outside of, or at, the northern corner of the No. 1 Landfarm treatment area are not characterized by L1-2 or L1-3. The leachate sump is 40' long and was built by joining five (5), 8-foot reinforced concrete pipe sections together.

A. A description of sealing of the sections of pipe connections was not located in the AWARE drawings. In addition, the landfarm leachate drainage line exits the clay liner to connect to the leachate sump in this area. Monitoring of water quality in the leachate tank area is needed based on the tank use.

Earth Systems/Hess Response 4A: Construction drawings regarding the sealing of leachate piping connections have not, to date, been located. Since it is not known if/how the leachate piping connections are sealed; Earth Systems/Hess proposes to install a monitoring well downgradient of the leachate piping run that is located outside of the landfarm limits (see Figure 1). This proposed monitoring well will be sampled on a quarterly basis for the following parameters: Target Compound List VOCs (TCL VOCs), TCL Semi-Volatile Organic Compounds (TCL SVOCs), Target Analyte Metals (TAL metals), and ammonia. At least four (4) quarterly rounds of groundwater samples will be collected from this monitoring well. If the results are below applicable Groundwater Quality Standards (GWQS), a modification of sampling frequency and/or parameters will be proposed. Please see Addendum B which includes a summary of proposed groundwater sampling for existing wells and proposed monitoring wells.

Please note that even though it is not known if the leachate piping connections are sealed; the No. 1 landfarm is surrounded on all sides by six (6) monitoring wells that are sampled on a quarterly basis and an additional three (3) monitoring wells that are sampled on an annual basis. The following is a brief summary of the 2021 analytical results:

- January 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
  - Targeted VOCs detected at concentrations less than GWQS
  - Targeted SVOCs benzo(a)anthracene was detected greater than GWQS in one sample (well BG-2)
  - Metals aluminum, arsenic, iron, lead, manganese, and sodium detected at concentrations greater than GWQS
- April 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
  - Targeted VOCs detected at concentrations less than GWQS

- Targeted SVOCs benzo(a)anthracene was detected greater than GWQS in one sample (well BG-2)
- Metals aluminum, arsenic, iron, manganese, and sodium detected at concentrations greater than GWQS
- July 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
  - Targeted VOCs detected at concentrations less than GWQS
  - Targeted SVOCs detected at concentrations less than GWQS
  - Metals aluminum, arsenic, iron, lead, manganese, and sodium detected at concentrations greater than GWQS
- October 2021 (L1-1, L1-2, L1-3, L1-4, BG-2, and BG-3)
  - Targeted VOCs detected at concentrations less than GWQS
  - Targeted SVOCs detected at concentrations less than GWQS
  - Metals aluminum, arsenic, iron, manganese, and sodium detected at concentrations greater than GWQS
- December 2021 Annual (SP-1, SP-2, and SP-3)
  - Targeted VOCs tetrachloroethene detected over the GWQS in one sample (well SP-2)
  - Targeted SVOCs bis(2-ethylhexyl)phthalate detected over the GWQS in one sample (well SP-3)
  - Metals aluminum, arsenic, iron, lead, and manganese detected at concentrations greater than GWQS
- B. Monitoring of water quality in the northern corner of the landfarm is needed to represent water quality that travels under the majority of the treatment area.

Earth Systems/Hess Response 4B: Based on this comment, one (1) additional monitoring well is proposed to be installed and included in quarterly groundwater monitoring for the No. 1 Landfarm. See Figure 1 for the location of the proposed monitoring well. The monitoring well will be installed on the interior side of the fence in the northern corner of the No. 1 Landfarm. The monitoring well will be constructed with similar well construction details as the other No. 1 Landfarm wells. The proposed monitoring well will be sampled on a quarterly basis for TCL VOCs, TCL SVOCs, TAL metals, and ammonia. Please see Addendum B which includes a summary of proposed groundwater sampling for existing and proposed monitoring wells.

**NJDEP Comment 5:** Leachate Sump Monitoring: The leachate sump is to be maintained during/after capping and until no leachate is generated. The soil sample methods (composite samples, three separate intervals) and leachate sample methods (historic, current) were/are not conservative for the assessment of VOCs. The current leachate

sample is also not specific to the leachate sump based on the Semi-Annual Groundwater Monitoring Report response to comments dated August 19, 2021 (response #8).

- A. Leachate sampling was not discussed as part of the sampling plan per the Department's July 9, 2018 comments. Please discuss leachate sampling.
  - **Earth Systems/Hess Response 5A:** Please see **Addendum B** for a discussion of current and proposed leachate sampling.
- B. Historic leachate samples were obtained prior to discharge to the manhole and mixing with any stormwater. The current sample is a combined stormwater-leachate sample prior to entering the treatment system. A leachate specific sample is needed and leachate data from the period prior to modification to sample after mixing with storm water should be evaluated for COCs.
  - **Earth Systems/Hess Response 5B:** The above information is incorrect. There is a gate valve present at the manhole that allows stormwater to be mixed with the leachate. The gate valve is always closed and during Earth Systems' operation of the treatment system, stormwater has not been mixed with leachate.
- C. Modifications are needed to access the sump for liquid level gauging and for sump leachate sampling by a method that is conservative for all COCs, including VOCs.
  - **Earth Systems/Hess Response 5C:** Please see **Addendum B** for a discussion of current and proposed leachate sampling methods.
- D. Monitoring of leachate volume pumped out, and reduction over time, will be needed to assist in evaluating the effectiveness of the cap.
  - **Earth Systems/Hess Response 5D**: Leachate volumes will be monitored as part of the existing discharge permit requirements.
- **NJDEP Comment 6:** Proposed Ground Water Sampling Plan: Hess has been conducting quarterly sampling at L1-1 through L1-4, BG-2 and BG-3. SP-wells were sampled in 2021. The August 2021 proposed sampling plan includes: removal of BG-wells; inclusion of SP-1, 2 and 3 wells for four (4) sampling events for VOC+15 followed by evaluation for continued VOC sampling; exclusion of L1-wells from VOC sampling based on historic data; all SP-wells and L1-wells will be sampled quarterly for SVOC+TICs, TAL metals, and ammonia.
  - A. Please clarify the status of the BG-wells in the sampling and/or gauging plan.
    - **Earth Systems/Hess Response 6A:** The BG wells will be sampled on a quarterly basis for TCL SVOCs, TAL metals, and ammonia. These wells will not be sampled for TCL VOCs since results for the BG wells have been below GWQS for the last eight (8) rounds of groundwater sampling for these

- compounds. At least four (4) quarterly rounds of post closure groundwater samples will be collected from these monitoring wells. If the results are below applicable GWQS, a modification of sampling frequency and/or parameters will be proposed. These wells will provide additional side-gradient analytical results. Sampling of the BG wells was explained in the *Pre & Post Closure Groundwater Sampling Plan* **Section 5** and is also explained in **Addendum B**, included with this letter.
- B. Based on contour maps, the SP-wells will provide additional upgradient and side gradient monitoring locations relative to the land treatment area. Please confirm.
  - **Earth Systems/Hess Response 6B:** Correct. The SP wells will provide additional upgradient and side-gradient analytical results.
- C. Downgradient VOC+TIC sampling at the L1-2 and L1-3 locations should be sampled at peak low tide (if tidal fluctuations are an issue) at least annually.
  - **Earth Systems/Hess Response 6C:** Monitoring wells L1-2 and L1-3 will be sampled annually at low tide, if tidal fluctuations are identified to be impacting the wells. (See NJDEP Comment 3 and response above)
- D. See Item 4, above, concerning ground water monitoring at the sump and north corner of the landfarm.
  - **Earth Systems/Hess Response 6D:** See Response 4A and 4B regarding proposed additional groundwater monitoring locations for the No. 1 Landfarm.
- E. Please include table(s) for proposed sampling: well construction and survey information for all sampled and/or gauged wells from the Well Construction Summary Table in Well Manual; sampling plan well ID, sample parameters and frequencies; and well gauging plan well ID, staff gauge ID, frequency
  - **Earth Systems/Hess Response 6E:** The applicable section of the November 19, 2021 Approved Well Manual (pertaining to the No. 1 Landfarm monitoring wells) has been included with this submittal.
- F. Provisions to identify tidal stage during ground water gauging and sampling events is needed.
  - **Earth Systems/Hess Response 6F:** Going forward, the tidal stage will be recorded during gauging and sampling activities conducted for the No. 1 Landfarm. The tidal stage will be recorded on the gauging spreadsheet and the low flow groundwater sampling form.

**NJDEP Comment 7:** Please clarify the site characterization sampling conducted at the manhole, oil/water separator, oil sump and leachate sump to evaluate any release for potential investigation, remediation and/or monitoring.

**Earth Systems/Hess Response 7**: The above referenced features are identified as AOC 35 and include three (3) concrete sumps that functioned as an oil/water separator prior to historically pumping the discharge to the API Separator (AOC 34). This equipment is no longer operational (since approximately 2013). This AOC was investigated during the Site Investigation (SI). Additional evaluation will need to be conducted to determine the next steps regarding decommissioning of these features and further investigation. A supplementary scope of work will be provided to the NJDEP and EPA regarding proposed investigation/remediation activities for AOC 34.

**NJDEP Comment 8:** Landfarm wastewater management systems, including storm water and leachate, and ground water that flows toward the northern corner of the No. 1 Landfarm, discharges to the North Ditch. The ditch needs to be investigated in the Ecological Evaluation. Surface water, soil and/or sediment will need to be collected to characterize the North Ditch.

**Earth Systems/Hess Response 8**: The North Drainage Ditch, identified as AOC 104 will be investigated as part of the Sitewide ecological investigation. An investigation workplan will be submitted for review at least 90 days prior to conducting any investigation activities in the North Drainage Ditch, per our standard review agreement with the Department.

Should you have any questions or require additional clarification or information, please contact me at 732-739-6444 or via e-mail at <a href="mailto:ablake@earthsys.net">ablake@earthsys.net</a>. If you have any questions relating to the project and schedule moving forward, you can also contact Mr. John Schenkewitz of Hess Corporation at 609-406-3969.

Sincerely,

Amy Blake

Sr. Project Manager

c. Mr. Joseph Nowak, NJDEP (via Sharefile)

Mr. Sameh Abdellatif, EPA (via Sharefile)

Mr. John Schenkewitz – Hess Corporation (via e-mail)

Mr. Rick Ofsanko – Earth Systems (via e-mail)

Mr. John Virgie – Earth Systems (via e-mail)

#### ADDENDUM A

#### Excerpt: July 9, 2018 (No. 1 Landfarm NJDEP Comments – Leachate and Groundwater)

- Leachate system monitoring is required:
  - The leachate collection system (treatment basin piping, sumps, oil/water separator, piping between all units, etc.), must be described and located. Access to any part of the leachate management system (other than the piping that is within the clay lined basin) should not be prevented by the cap construction for monitoring/maintenance.
    - See Figure 1
  - The leachate collection and management system must be evaluated to identify the most conservative sample collection location and method for VOCs.
    - See Addendum B
  - The location of the leachate collection system structures must be shown with the ground water monitor well locations. Additional ground water monitoring location(s) may be required.
    - See Figure 1 and Addendum B
  - Leachate generation should decrease after capping of the unit. Leachate volumes
    after capping must be evaluated over time to determine if the cap or the clay liner
    is or may be compromised.
    - See Response 5D
  - Modifications to the leachate collection system, including removal or abandonment of system components, should be evaluated if leachate generation after capping is eliminated.
    - As per the approved Remedial Action Design, "Following the construction of the cap system and attendant reductions in leachate generation, an evaluation will be conducted to determine if the reduction of leachate will allow for operation of the leachate collection system to be discontinued." Once this occurs, a recommendation regarding removal or abandonment of the leachate system components will be made.
  - Leachate sampling is required in conjunction with ground water sampling (when leachate is generated), and include the same parameters.
    - See Addendum B

#### **ADDENDUM B**

#### **Leachate Sampling Plan**

The following is a brief summary of the current leachate sampling conducted as part of groundwater monitoring at the No. 1 Landfarm. This summary does not include details pertaining to the post-treatment leachate sampling conducted as part of the New Jersey Pollutant Discharge Elimination System (NJPDES) permit requirements.

#### Sample Collection Methods

A leachate sample is currently collected via a sampling port located inside the treatment shed prior to exposure to any treatment vessels. The leachate sample port is preceded by leachate collection piping which gravity feeds into an underground sump, then is pumped by a submersible transfer pump to a lift station. The leachate is then pumped by a submersible transfer pump from the lift station to the treatment shed. The NJDEP is concerned that the current sample collection method could potentially bias the results for Volatile Organic Compounds (VOCs) low. Please note that (as summarized below) VOC results have been consistently below Groundwater Quality Standards (GWQS). Also, the landfarm is surrounded by six (6) groundwater monitoring wells that are sampled on a quarterly basis. Groundwater samples collected from all of these monitoring wells have also been consistently below GWQS for VOCs as well. However, the collection of the leachate sample can be modified going forward and be collected via a bailer from the existing leachate sump. The leachate within the existing sump can be accessed via vertical piping that currently houses the liquid level sensor, which can be temporarily removed during sampling events and immediately replaced to continue normal operations.

#### Analytical Results

A pre-treatment leachate sample is currently collected on a tri-annual basis and analyzed for VOCs, Semi-Volatiles (SVOCs), Pesticides, Polychlorinated Biphenyls (PCBs), metals, and general chemistry parameters (chloride, cyanide, ammonia, and phenols). The following is a summary of the last two (2) years of leachate data (exceedances only).

Leachate Sample	GWQS	10/4/2021	7/6/2021	4/21/2021	12/11/2020	6/20/2020	1/20/2020	
VOCs		<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<>	<gwqs< td=""></gwqs<>	
SVOCs		<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<>	<gwqs< td=""></gwqs<>	
Pesticides		<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<>	<gwqs< td=""></gwqs<>	
PCBs		<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<></td></gwqs<>	<gwqs< td=""><td><gwqs< td=""></gwqs<></td></gwqs<>	<gwqs< td=""></gwqs<>	
Metals								
Arsenic	3	11.3	6.3	ND	2.96	11	3.9	
Nickel	100	54.4	40	64	252	127	208	
General Chemistry								
Ammonia (ppm)	3	2.9	0.54	ND	NA	NA	NA	

#### Modified Proposed Sampling Plan

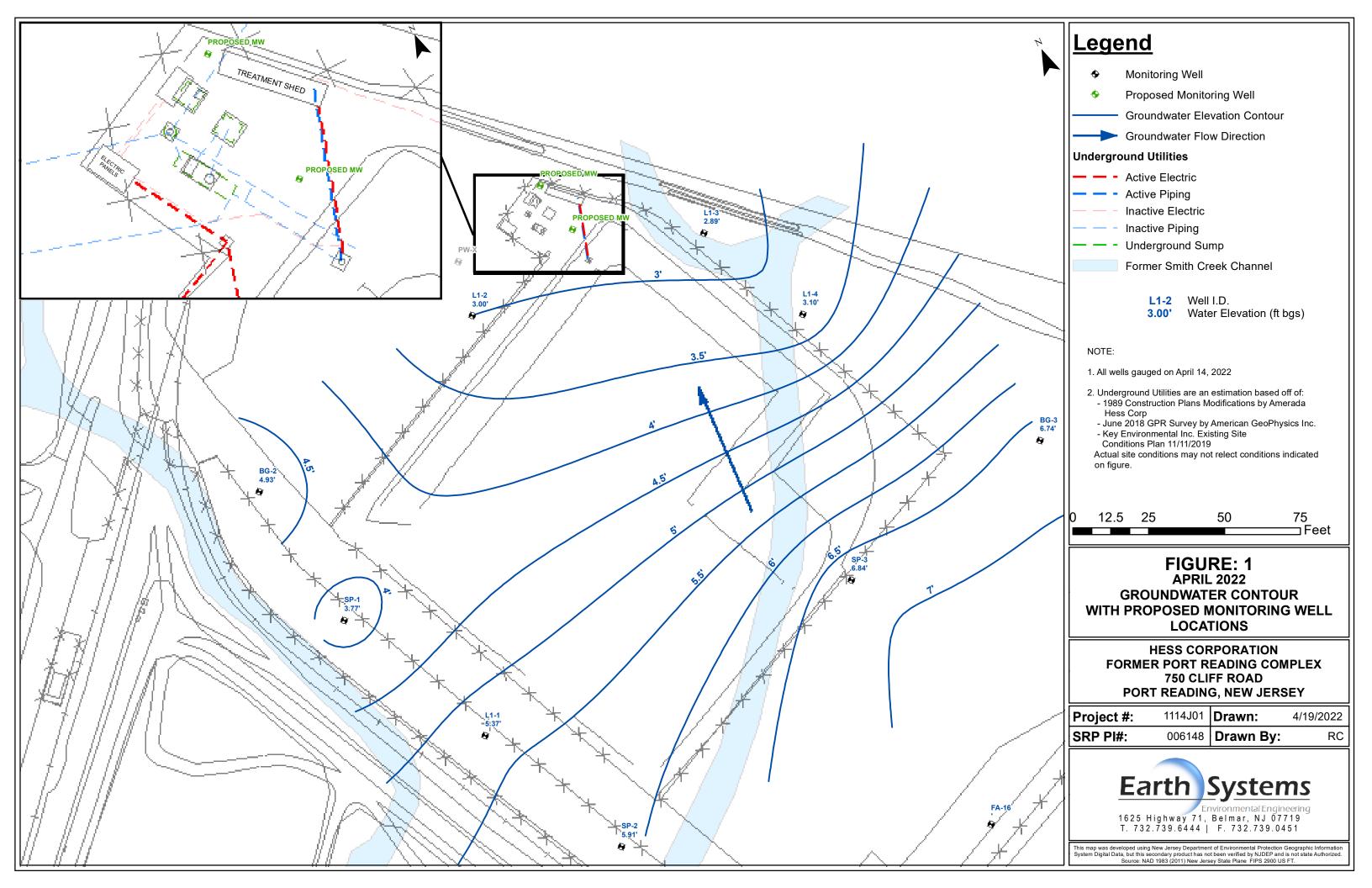
Going forward, pre-treatment leachate samples will be collected quarterly (at the same frequency as groundwater samples) and will be analyzed for the same parameters as the groundwater samples. As explained above, the sample that will be analyzed for VOCs will be collected via the existing leachate sump via bailer.

The following table below summarizes the proposed groundwater sampling plan for the No. 1 Landfarm. This plan has been modified from the plan that was originally included in the *Pre & Post Closure Groundwater Sampling Plan* and now includes the additional two (2) proposed monitoring wells and leachate sample collection as well.

Sample ID	Frequency	Parameters	Location
Leachate (Pre-Treatment)	Quarterly *	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Not Applicable
SP-1, SP-2, and SP-3	Quarterly	TCL VOCs + Tics**, TCL SVOCs + TICs, TAL Metals, Ammonia	Up- gradient/Side- gradient
L1-1 through L1-4	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	L1-2 and L1-3: down-gradient, L1-1: up- gradient, and L1-2: side- gradient
BG-2 and BG-3	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	Side-gradient
Proposed Wells	Quarterly	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Down-gradient

\*Leachate samples will be collected until only a de minimus amount of leachate is being produced. Leachate volumes are expected to decrease following capping of the landfarm.

\*\*A modification of sample parameters may be requested once four (4) quarters of analytical results are below applicable GWQS.



#### Former Hess Port Reading Complex 750 Cilff Road Port Reading NJ Port Reading No. 1 Landfarm Monitoring Well Construction Table

						Latit	ude	Longi	tude																					
Well ID	AOC	Permit Number	Status	Block	Lot					Northing	Easting	TOC Elevation (ft)	round Elevation (ft)	Survey Date [	Diameter (in	Screen Length (ft)	Screen Interval (bgs, ft)	Screen Interval (TOC, ft)	Stick-Up Height (TOC - Ground Elev., ft)	Screen Type	Casing Length (ft)	Depth of Well (bgs, ft)	Depth of Well (TOC ft)	, Gauged DTB from <sup>0</sup> TOC (11/5/2020)	Gauged DTB from TOC (11/19/20)	Install Date	Permit Date	Use	Well Log Provided (Yes/No)	Decommissioning Documentation
BG-1	3	2600009305	Abandoned	756	3	40 33	43.32	74 14	31.85	630664	562773	10.99	12.25	6/26/1986	4	20	24-44	25.29-45.29	Flush Mount	.020 PVC	25.29	45.29	45.29	-		6/27/1986	6/25/1986	MONITORING	Yes	Yes
BG-2	3	2600008132	Active	760.02	1	40 33	43.57	74 14	30.60	629776	563850	6.96	7.16	12/21/2017	4	5	4-9	4-9	Flush Mount	.020 PVC	4	9	9.00	8.95		10/18/1985	10/16/1985	MONITORING	Yes	-
BG-3	3	2600011432	Active	760.02	1	40 33	41.07	74 14	21.70	629526.83	564537.71	10.31	7.7	12/9/2014	4	5	5-10	7-12	2.61	.020 PVC	7	10	12.00	11.25		9/16/1987	9/3/1987	RECOVERY	Yes	-
L1-1	3	2600008068	Active	760.02	1	40 33	40.67	74 14	29.29	629483	563952	9.91	10.14	12/21/2017	4	10	4.25-14.25	4.25-14.25	Flush Mount	.020 PVC	4.25	14.25	14.25	13.45	14.2	10/18/1985	10/1/1985	MONITORING	Yes	-
L1-2	3	2600008065	Active	760.02	1	40 33	44.26	74 14	27.38	629846.79	564098.56	9.05	7.63	12/9/2014	4	10	4-14	5.5-15.5	1.42	.020 PVC	5.5	14	15.50	14.37	14.75	10/18/1985	10/1/1985	MONITORING	Yes	-
L1-3	3	2600008066	Active	760.02	1	40 33	44.09	74 14	24.41	629830.29	564327.89	9.33	8.31	12/9/2014	4	5	5.4-10.4	6.4-11.4	1.02	.020 PVC	6.4	10.4	11.40	10.20	11.2	10/19/1985	10/1/1985	MONITORING	Yes	-
L1-4	3	2600008067	Active	760.02	1	40 33	43.04	74 14	23.71	629723.85	564382.18	10.85	9.07	12/9/2014	4	5	4-9	6-11	1.78	.020 PVC	6	9	11.00	11.30	-	10/18/1985	10/1/1985	MONITORING	Yes	-
L1-6	3	2600011434	Abandoned				-		-				-		4	10	4-14	6-16	2	.020 PVC	6	14	16.00	-		9/15/1987	9/3/1987	RECOVERY	Yes	No
SP-1	3	2600025338	Active	760.02	2	40 33	42.17	74 14	30.29	629634	563875	8.95	9.17	12/21/2017	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	12.71		6/6/1991	6/4/1991	PIEZOMETER	No Well Log Located	-
SP-2	3	2600025339	Active	760.02	2	40 33	39.23	74 14	28.32	629337	564027	10.18	10.36	12/21/2017	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	13		6/6/1991	6/4/1991	PIEZOMETER	No Well Log Located	=
SP-3	3	2600025340	Active	760.02	2	40 33	40.61	74 14	24.47	629478.15	564323.96	9.33	9.59	19/9/2014	2	10	3-13	3-13	Flush Mount	.010 PVC	3	13	13	13.01		6/5/1991	6/4/1991	RECOVERY	No Well Log Located	

# BG-1

DWR-133 (5/86)

Date \_

COPIES:

Mali to

Water Allocation CN 029

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

Permit No. 26-9305

## PERMIT TO DRILL WELL 25

Trer	nton, N.J. 08625  VALID ONLY AFTER APPROVAL	BY THE D.E.P.	26.31 9.23	
Addres	WOODBURY N.J.  of Facility PORT READING REFSHEN  of Well  Proposed  Gapacity  Port READING, N.J.  Use of W	of Pump No As GP of (See Reverse) C. ROL	TABASCO  OTT ENCINEERING  INGTON AVERING  1NGTON AVER  08075  Proposed  proposed of Drilling  Method Of Dr	_
Lot#	- Ret Estate Middlesson m	ketch showing distance enest: gublic roads; stre	e and relations of well site to	
State	Atlas Map No.  2400  Wesseldard  Wesseldard  Atlas Map No.  2400  Wesseldard  Atlas Map No.  2400  Atlas Map No.  Atlas Map No.  2400  Atlas Map No.  2400		No sew or septi	ics .
of this o	VERSE SIDE for IMPORTANT PROVISIONS AND TEQUIATIONS permining to ermit is made SUBJECT TO acceptance of and compliance with the following ADDI Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness	LIGITALE OPHIBITION	This Spece for Approval Starop	
	It is necessary that Geophysical Logs of this well be made. Permanent pumping equinstalled until such logs are made.  Authorization by rule under N.J.A.C. 7:14A-1 et seq.  Samples of cuttings required every	IPMENT SHALL NOT be	WELL PERMIT APPROVED JUN 25 1986	
	Demectic Potable Water Supply - The service line for water from the public commusystem shall be turned off at the curb cock, and the meter shall be removed by the analysis irrigation Supply - No piping from the well for which the permit applies a industrial/Commercial Supply - A physical connection permit shall be obtained pun of N.J.A.C. 7:10-10-1 at seq., and a vigorous cross connections control program shall maintained within the premises.	hail enter any building. suant to the provisions Il be instituted and	DEPT. ENV. PROTECTION DIV. OF WATER RESOURCES WATER ALLOCATION	
	Heart Pump Wells - Wells must be 60 feet spert and the water must be returned to the production well.  Impliance with R.S. 58:4A-14, application is made for a permit to drill a water must be returned to the production with R.S. 58:4A-14.		1 SEALED)4 91	
H) <b>TO</b>	tribitation tangi ingi abetis islabbuanen is mene ser a betisis a			

Signature of Owner \_

Health Dept. - Yellow

Water Allocation - White

Driller - White

Owner - Blue

WELL SEALED ....

bandle 26.31.926

1/80 LEA 3929B/

FOR MONITORING PURPOSES ONLY STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

APPLICATION NO.

#### WELL RECORD

1.	OWNER A MERADA HESS ADDRESS HESS PLAZA WOODBURY N.J.
	Owner's Well No. MW-1 BG-1 DEED WELL SURFACE ELEVATION (Above men) Feet
2.	LOCATION STATE STREET PORT KEADING N.J. (WOOMMINGE MY)
3.	DATE COMPLETED JUNE - 27 1986 DRILLER ME EL DORON
4.	DIAMETER: Too 4 Joches Rotton 4 Inches TOTAL DEPTH 45 . 3/2 Feet
5.	CASING: Type C Diameter 4 Inches Langth 25:38 Feet
6,	SCREEN: Type PYC Size of Opening 1020 Diameter 4 Inches Length 20 Feet
	Range in Depth { Top Feet   Geologic Formation PAPITAU - MAGACTHY   Geologic Formation PAPITAU - MAGACTHY   Feet   Geologic Formation PAPITAU - MAGACTHY   Geolo
	Tail Piece: Diameter Inches . Langth Feet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
9.	RECORD OF TEST: Date JUNE - 27, 1986 Yield 15 Gallons per minute
	Static water lavel before pumping Feet below surface
	Pumping level feet below surface after hours pumping
	Drawdown Feet - Specific Capacity Gals, per min. per ft. of drawdown
	How pumped SHALLOW WELL DET How measured VOLUMETRICALLY
	How pumped SMALLOW WELL JET How measured VOLUMETRICALLY  Observed effect on nearby wells NONE
<b>2</b> .	Observed effect on nearby wells
<b>)</b> .	Observed effect on nearby wells
<b>3</b> .	Observed effect on nearby wells
<b>3</b> .	Observed effect an nearby wells
9.	Deserved effect on nearby wells
<b>).</b>	Diserved effect on nearby wells
	Deserved effect an nearby wells
	Observed effect on nearby wells
	Deserved effect on nearby wellsNONE  PERMANENT PUMPING EQUIPMENT:  Type
	Observed effect on nearby wells NONE  PERMANENT PUMPING EQUIPMENT:  Type

(NOTE: Use other side of this sheet for additional information are

#### 26.31.926

LIPPINCOTT ENGINEERING ASSOCIATES

26-9305

DELANCO, N.J. 08075 501 BLALINGTON AVENUE SHEET 1 OF 2 SURFACE ELEV 9.73 PROJECT NO. 3929.B1 DATE 6/26/86 PROJECT MONITORING WELL INSTALLATION CLIENT AMERADA HESS LOG OF BORING NO. BG-1 Deep Well LOCATION PORT READING, HJ JJT/mk CLASSFICATION OF MATERIALS ON SAMPLES RECOVERED PLUS OBSERVATION NAMBER OF MOISTURE CONTENT BLOWS OF MATERIAL RETURNED BETWEEN BAMPLES PER 6 Reddish brown coarse SAND. 5-8-12-14 S-1 0/ Same. 17~19-17-18 Dark brown medium-coarse SAND. S-3 <u>1-1-1-8</u> Same. 5-4 6/ 10-17-17-16 a PEAT. 8-3-3-2 **S-5** 8/ 10 Grey SILT & PEAT. 1-1-1-1 14/ Same, S-7 Grey SILT. 3-3-3-6 S-8 25 26 Reddish brown medium-coarse SAND. 29/ 6-12-15-23 5-9 31 1-3-6-10 Same. S-10 -3-8-9 Same. 3-11 40 R-106 Rev. GROUND WATER DATA A. STANDARD POSETRATION TEST (ASTM-D 1888) DATE HOUR DEPTH STANDARD THEY-WALLED S" TUBE (ASTM-D 1597) 6/26/86 6 -2" C CORE DRILLING EQUIPMENT CM J. GRABITZ DRILLER E. DORON HELPER

. 26.31.926

26-9305

ROJ OC/	ECT.	1	ONITO	RING WELL INS	TALLATION CLIENT AMBRADA HESS  LOG OF BORING NO. BG-1 De.  JJT/Pk	en Well
EV TH	SHAPLE NUMBER	1VPE*	SUMPLE DEPTH	NUMBER OF BLOWS PER 8	CLASSFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION MOIST OF MATERIAL RETURNED BETWEEN SAMPLES	URE CONTERT
	-12	· .	44/	7-7-10-10	Reddish brown medium-coarse SAND.	
50-	S-13	A		12-18-12-23		
					ROB 50'-0"	
#						
					•	
					_	
					-	106 Rev.

26.31.926

# GROUND WATER MONITORING WELL CERTIFICATION - FORM A - AS-BUILT CERTIFICATION 26-9305 (One form must be completed for each well)

lame of Permittee: AMERADA HESS	
Jame of Facility: Tort NEADING INTER- Location: State Street Port Ke	Ading, N.J.
	and the second s
JPDES Permit No: NJ	
THE STATE OF STRUCTURE OF THE STATE OF THE S	•
ENGINEER'S CERTIFICATION Well Permit Number (As assigned by NJDEP's Water	
This number must be permanently affixed to the	269305
well casing.	767357
<del>-</del>	
Owner's Well Number (As shown on the application	BG-1 (DEEP WELL)
or plans):	June -27 1986
Well Completion Date:	Suber A. Char
Distance from Top of Casing (cap off) to ground	1.26
eurface (one-hundredth DI & IOOt);	45.29
Total Depth of Well (one-tenth of a foot):	
Depth to Top of Screen From Top of Casing	25.29
(one-tenth of a foot):	201
Screen Length (feet):	.020 IV.
Screen or Slot Size:	PYC
Screen Material: (PVC, Steel or Other-Specify):	PYC
Casing Diameter (Inches):	4.0
DALLA WALLS TAYAL From TOD OF CASING AT THE	•
Time of Certification (one-hundredth of a foot):	
Yield (Gallons per Minute):	
Length of time Well Pumped or Bailed:	
Lithologic Log:	ATTACH ON BACK
AUTHENTICATION:	and and and and
I certify under penalty of law that I have personal transfer of the state of the st	dogwent and all attach-
I certify under penalty of law that I have personally of the familiar with the information submitted in this	Airrana immediately
ments and that, based on my inquity of those in responsible for obtaining the information, I be information is true, accurate and complete. I	
information is true, accurate and complete. Information is true, accurate and complete. Information is true, accurate and complete.	mation including the
significant penalties for submitted large. Income	
possibility of fine and imprisonment.	
	-
Mawalaland	
Professional Engineer's Signature	·
**************************************	٠
Moustafa A. bouda	
Professional Engineer's Name	SEAL
(Please type or print)	Senu
# 20848	-
	•
Professional Engineer's License #	

26.31.926

### THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT

MOUND WATER MONTED	RING WELL CERTIFICATION	N - FORM B - LOCATIO	N CERTIFICATION
KOUND WATER MONTEO	. 2		•
Name of Permittee:		<u>sss</u>	
Name of Facility:	PORT PEADING	PORT PEAN	ν <sub>6</sub> μ. γ.
ocation:	STATE STAPET	70,81	
JPDES Number:	ŊJ		
AND SURVEYOR'S CER	TIFICATION	:	
Allocation Section.	(As assigned by NJDEP', 609-984-6831): permanently affixed t	<u> </u>	_
ongitude (one-tenth atitude (one-tenth clevation of Top of (one-hundredth of	f Casing (cap off) a foot):		14 ~ 31.85 33 - 43.32
or plans):	(As shown on the appli		(DEED MERT)
•			•
UTHENTICATION	·•.	·	
amiliar with the sents and that, bases esponsible for obtaining in the significant penalt.	malty of law that I have information submitted in sed on my inquiry of the taining the information e, accurate and completies for submitting false and imprisonment.	ose individuals imm I believe the sub- I am aware that	ediately mitted there are
•	4.		
9/11 1	Li Ho	•	ŧ ,
ROFESSIONAL LAND	SURVEYOR'S SIGNATURE	•	1
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1/ ing out 5	Schulte	•	SEAL
ROFESSIONAL LAND	SURVEYOR'S NAME	· · · ·	- Dunu
(Please print			

ROFESSIONAL LAND

Department reserves the right in cases of violation of permit specified ground water sits or Ground Water Quality Standards (N.J.A.C., 7:9-6.1 ct seq.) to require that wells be surveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall:

DMR-020

# New Jersey Department of Environmental Protection Division of Water Resources — Bureau of Water Allocation

## WELL ABANDONMENT REPORT

MAIL TO.	WELL PERMIT # 26-9305
Bureau of Water Allocation	DATE WELL SEALED 1/04/91
CN 029 Trenton, NJ, 08625	26 31 923
PROPERTY OWNER Amerada Hes	ss Coropration
250 Cliff F	Road, Port Reading, N.J.
ADDRESS	<u>-                                    </u>
Street & No , Township, County	Road, Port Reading, N.J. Middlesex
BG-1 , L-3,BL-	itude & Latitude (N.J. Grid & may be substituted for longitude & latitude)
TYPE OF WELL ABANDONED.	Monitoring
REASON FOR ABANDONMENT:	Request of Client
WAS A NEW WELL DRILLED? YES	NO PERMIT # OF NEW WELL'
TOTAL DEPTH OF WELL  DIAMETER  CASING LENGTH SCREEN LENGTH NUMBER OF CASINGS  MATERIAL USED TO SEAL WELL:  7 Gallons of Water Lbs. of Cement Lbs. of Bentonite Lbs. of Sand/Graval (none if well is contuminated)  FORMATION:  Consolidated  XX Unconsolidated	Gross-section of sealed well nearest roads, buildings, etc.  40041  20'  20'  20'  20'  20'  20'  20'  20
must be removed. Pressure grouting is the or	ild remain in place, but ungrouted liner pipes or any other obstructions nly accepted method.
117007010101111111111111111111111111111	NO CASING MATERIAL: PUC
WERE OTHER OBSTRUCTIONS REMOVED?	YES 🔯 NO , WHAT WERE THE OBSTRUCTIONS!
certify that this well was sealed in accordance	
	Forge Rd., West Creek, New Jersey 2/20/93
Name of Person Doing Sealing Work Address (Print or Type)	Mailing Date 1130
A thronger ablest	Signature of Person Doing Sealing Work License #
	The second of th



Form DWR-133 (4/82)

STATE OF NEW JERSEY

DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

#### PERMIT TO DRILL WELL

Permit No. 26-8130-26.31.68132

Water Allocation CN-029

Mail to

Trenton, N.J. 08625

VALID ONLY AFTER APPROVAL BY THE D.E.P.

	THO THE DI THE DUE.	
Owner AMERADA HESS	Driller Jose PH	TABASCO
Address 1 HESS PLAZA	Address 90 LIPPIN	VCOTT ENGINEERING- VRLINGTON AVE
WODBURY NO		ICU NOTON AVE
Name of Facility FORT READING REFINERY	Diameter of Well	Proposed Depth of Well Inches 25 to 30 Feet
Address STATE ST	Proposed Capacity of Pump	
PORT READING, NO	Use of Well (See Reverse)  GROUND WATZ	ER MONITORING
LOCATION	1.5	9 Job # 3929.1
Lot# Block# Municipality County PORT READING MIDDLESEX		tance and relations of well site to streets, septic systems, etc.
State Atlas Map No. 26	North	FOR MONITORING PURPOSES ONLY
West 0000	19000000000000000000000000000000000000	26-8136-3 8131-1 8132-0 3wells (D6,86,86-2)
SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULAT permit. APPROVAL of this permit is made SUBJECT TO acceptance of the following ADDITIONAL CONDITIONS:  Permit issued in accordance with provisions of letter of transmittal dated _	f and compliance with	This Space for Approval Stamp
It is necessary that Geophysical Logs of this well be made. Permanent purn be installed until such logs are made.  Samples of cuttings required every	community water supply to the water purveyor.  applies shall enter any building, ined pursuant to the provisions gram shall be instituted and	WELLPREMMIT AMPTER OVED  COST 166 1985  DEEPTERNV. PROTECTION DOWNORS WATER ALLOCATION WHATER ALLOCATION
In compliance with R.S. 58:4A-14, application is made for a permit to d	rill a well as decribed above	
Date Signature	of Owner	
WATER ALLOCAT	ION COPY	

Form DWR- 138 11/80

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

26-31-819

# APPLICATION NO. \_\_\_\_\_\_\_\_ COUNTY MIDDLESEX

#### WELL RECORD

1.	OWNER AMERADA HESS ADDRESS PORT READING NJ
	Owner's Well No. B6-2 SURFACE ELEVATION 9.6 Feet
2.	LOCATION NORTH LAND FARM
3.	DATE COMPLETED 10-18-65 DRILLER BARRIE WOODLOGTON
4.	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9-Z Feet
5.	CASING: Type PVC Diameter 4 Inches Length 4.7 Feet
6.	SCREEN: Type PVC Size of Opening -020" Diameter 4 Inches Length 5.0 Feet
	Range in Depth   Top Feet  Geologic Formation RARITAN - MAGOTOTY  Geologic Formation RARITAN - MAGOTOTY
	Tail Piece: Diameter Inches Length Feet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	RECORD OF TEST: Date
	Static water level before pumping 3.3 Feet below surface
	Pumping level 9.0 feet below surface after 5 hours pumping
	Drawdown Feet Specific Capacity Gals, per min, per ft, of drawdown
	How pumped SHALLOW WELL SET How measured VOLUMETRICALLY
	Observed effect on nearby wells
9.	PERMANENT PUMPING EQUIPMENT: NO
	Type Mfrs. Name
	Capacity G.P.M. How Driven H.P. R.P.M
	Depth of Pump in well Feet Depth of Footpiece in well Feet
	Depth of Air Line in well Feet
10,	USED FOR <u>GROUND WATER MONITORING</u> AMOUNT  Average Gallons Daily  Maximum Gallons Daily
11.	QUALITY OF WATER No
	Taste Odor Color Temp of.
12,	LOG SEE ATTACHED  Are samples available? YES  (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13.	SOURCE OF DATA DRILLERS OBSERVATIONS
14.	DATA OBTAINED BY JOE Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

### LIPPINCOTT ENGINEERING ASSOCIATES

501 BURLINGTON AVENUE

DELANCO, N.J. 08075

PRO DAT	JECT E	NO.	. <u>39</u> : 0/18/8	29.A1 5	26-31-819 SHEET_5 26-8132 SURFACE E	OF.	9	7		<del></del>
PRO	)JECT	!	WELL I	NSTALLATION/	NO. 1 LAND FARM CLIENT AMERADA HESS					
LOC	CATION	<b>!</b> _	PORT	READING REF	LOG OF BORING NO. BG-					_
	МX		1 141	NUMBER OF	Permit No. 26-8132	سنست الراج	S	10, 5, 11, 12	يسمناييام	ent week
DEPTH	SAMPLE NUMBER	TYPE *	SAMPLE DEPTH	BLOWS	CLASSIFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION	MOIS	TIME	- cr	W TE	
8	SS S	7	88	PER 6"	OF MATERIAL RETURNED BETWEEN SAMPLES	- C	) I UNI		MIE	N I
0	S-1	A		5-7-15-21	Brown coarse-fine SAND, some silt, little	1		十	_	<b>-</b> 1
			2_		gravel.					
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5 -	S-2	A	4/	3-7-7-10	Same.					ŀ
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	S-3	Α	9/	2-2-1-2	Dark brown PEAT.					
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	GROUN	D '	WATER	DATA	\$	R-	106	Re	v.:	 2/77
D	EPTH	1	HOUR	DATE	A. STANDARD PENETRATION TEST (ASTM-D 1586)					
3	-0"			10/19/85	B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587)	)				
<u> </u>				<del>                                     </del>	C. CORE DRILLING					
				<u> </u>	DRILLER J. SNYDER MEIPER E. D	ABAX	ľ			



# **New Jersey Department of Environmental Protection** Site Remediation Program

## Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

	(For Department use only)						
SECTION A. SITE NAME AND LOCATION							
Site Name: Hess Former Port Reading Complex							
List all AKAs:							
Street Address: 750 Cliff Road							
Municipality: Township of Woodbridge (T	ownship, Borough or City)						
County: Middlesex Zi	p Code: 07064						
Program Interest (PI) Number(s):	Case Tracking Number(s):						
SECTION B. WELL OWNER AND LOCATION							
Name of Well Owner							
Well Location (Street Address)							
Well Location (Municipal Block and Lot)     Block#	Lot #						
SECTION C. WELL LOCATION SPECIFICS							
1. Well Permit Number (This number must be permanently affixed to the	e well casing): 2600008132						
2. Site Well Number (As shown on application or plans): BG-2							
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:							
Latitude: North 40°33'43.57" Long	itude: West 74°14'30.60"						
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet	units, to nearest foot:						
North 629776 East	563850						
5. Elevation of Top of Inner Casing (cap off) at reference mark (neares	t 0.01'): 6.96						
Elevation Top of Outer casing: 7.18 Elevation of	ground: 7.16 (PAVE)						
Check one: ⊠ NAVD 88 ☐ NVGD29 ☐ On Site Datum	☐ Other						
6. Source of elevation datum (benchmark, number/description and elev here, assume datum of 100', and give approximated actual elevation							
BENCHMARK: NJTP PISCATAWAY CORPS ARP ELEV.= 109.56' (NAVD 88 DATUM)							
7. Significant observations and notes:							
SECTION D. LAND SURVEYOR'S CERTIFICATION	SEAL						
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.							
Professional Land Surveyor's Signature:	Date 12/21/2017						
Surveyor's Name: Steven D. Parent	License Number: 24GS03626900						
Firm Name: DPK Consulting, LLC	Certificate of Authorization #: 24GA28042200						
Mailing Address 220 Old New Brunswick Road Suite 201							
City/Town: Piscataway State New	Jersey Zip Code: 08854						
Phone Number 732.764.0100 Ext.:	Fax: 732.764.0990						



JENE 9129.C-9 DWR-133 (5/85)

Mail to

Water Allocation CN 029

COPIES:

Water Allocation - White

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

## PERMIT TO DRILL WELL ?

Trenton, N.J. 08625	PPROVAL BY THE D.E.P. COORD#:26.31926
Owner AMERADA HESS  Address / HESS PLAZA  (XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Driller ED DORON - UPPINOTT ENG. ASSOC.  Address SOLBURUNGTON AUE.  DELANCO, N.T. OBO75  Diameter of Well 8" Inches Depth of Well 20 Feet Proposed Method of Drilling Capacity of Pump N/P GPM (cable-tool, rotary, etc.) AUGETR  Use of Well (See Reverse) RECOVERY
LOCATION	N OF WELL
State Atlas Map No. 26	Draw sketch showing distance and relations of well site to nearest public roads, streets, septic systems, etc.  North
NORTH LAND FORM	NORTH DRAINAGE DITCH East
SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pert of this permit is made SUBJECT TO acceptance of and compliance with the follow.  Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in this necessary that Geophysical Logs of this well be made. Permanent pur installed until such logs are made.  Authorization by rule under N.J.A.C. 7:14A-1 et seq.  Samples of cuttings required every feet or change in note that the results of a volatile organic scan mut be obtained prior to using the way system shall be turned off at the curb cock, and the meter shall be removed.  Domestic Irrigation Supply - No piping from the well for which the permit industrial/Commercial Supply - A physical connection permit shall be obtained within the premises.  Heat Pump Wells - Wells must be 50 feet apart and the water must be return production well.	This Space for Approval Stamp  This Space for Approval Stamp
In compliance with R.S. 58:4A-14, application is made for a permit to	drill a well as described above.

Health Dept. - Yallow

Owner - Blue

Driller - White

PETATLION IN INVESTIGATION OF ENVIRONMENTAL PROTE DIVISION OF WATER RESOUT 15

26.31.926

# FOR OBSERVATION PURPOSES ONLY

WELL RECORD

CONT MINAGE SCO

. 1	OWNER AMERA DEHESS ADDRESS I HESS PLAZA Wood Bridge AJ.
	Owner's Well NoBG-3 SURFACE ELEVATION 6 Feet
2	Owner's Well No. BG-3 SURFACE ELEVATION [Above mean see level] Feet  LOCATION PORT ROADING REFINERS STATE ST.
3,	DATE COMPLETED 9-16-87 DRILLER ENGINE DORON
4.	DIAMETER: Top 4" inches Bottom "inches TOTAL DEPTH 10. Feet
5.	CASING: Type PVC Diameter 4 Inches Length Feet
6,	SCREEN: Type PVC Size of Opening © 20 Diameter Y Inches Length 5 Feet
	Range in Depth
	Tail Piece: Diameter Inches Length Feet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	RECORD OF TEST: Date 7-16-87 Yield 4 Gallons per minute
	Static water level before pumping 3777 Feet below surface
	Pumping level 92 feet below surface after 2 hours pumping
	Drawdown Feet Specific Capacity Gals, per min, per ft, of drawdown
	How pumped Jet Puril How measured Volume RICHLY
	Observed affect on nearby wells
9.	PERMANENT PUMPING EQUIPMENT:
	Type N/A Mfrs, Name
	Capacity G.P.M. How Driven H.P R.P.M2
	Depth of Pump in well Feet
	Depth of Air Line in well Feet Type of Meter on Pump SizeInches
0.	USED FOR Ground water montoring AMOUNT AMOUNT AMOUNT Gallons Daily
	OUALITY OF WATER Sample: Yes No
	Teste Odor 1 Color
2.	Taste Odor Color Temp of.  LOG See
3,	SOURCE OF DATA Briller operuation & MARGS corners
4,	DATA OBTAINED BY ELWARD DOROW DOWN 9-4-87

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

PRO	JECT	NO.	393	LIPF 501	PINISTT ENGINEERING ASSOCIATES  BURLINGTON AVENUE DELANCO, N.J. 08073 26  SHEET /	OF
			>-87		SURFACE E	LEV
	JECT				CLIENT	
LOC	4OITA:	<i>_</i> #	men	ADA He	LOG OF BORING NO. BC	-3.
I	AR.	<b>ķ</b>	ä <sup>x</sup>	NUMBER OF	CLASSIFICATION OF MATERIALS	
DEPTH	SANS	TYPE *	SAMPLI DEPTH	BLOWS PER 6"	BASED ON SAMPLES RECOVERED PLUS OBSERVATION	MOISTURE CONTENT
0	/	<del>,</del>	0/	2- 4	OF MATERIAL RETURNED DETWEEN SAMPLES	++++
			/5	6-9	Brown Course Stand T/SILT	
$\vdash$	_2_	Æ	141	8-15	Brown Earl Stand / 5/11	
	7	Æ	9/	7-2		
<u></u>	- 17		16	1-1	Brun Sand m/F	
	7_	4	E/-	1/2-1	Brown SILty 341-2	
	4	12	Z	1-112		
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1		<del> </del>			6" STEEL CAP	
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Martin Control	GROU	/D	WATER	DATA		R-106 Rev. 2/77
<u> </u>	EPTH	e de la composition della comp	HOUR	DATE	A, STANDARD PENETRATION TEST (ASTM-D 1998)	
3	= /			9-16	B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1887	7
-		<u> </u>			C, CORE DRILLING	
-	رند بر <del>ک بر</del> کرد.	┢			DRILLER EDORON HELPER DINGHALOR BE	QUIPMENT D59/Z
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### New Jersey Department of Environmental Protection Site Remediation Program

## Monitoring Well Certification Form B - Location Certification

Date Stamp
For Department use onl

SECTION A DITE NAME AND ADDRESS.		(For Department use only
SECTION A. SITE NAME AND LOCATION		
Site Name: AMERADA HESS CORPORATION		
List all AKAs: BUCKEYE PORT READING TERMINAL LLC		
Street Address: 750 CLIFF ROAD		
Municipality: WOODBRIDGE TOWNSHIP (PORT READING	i)	_ (Township, Borough or City)
County: MIDDLESEX		_Zip Code: 07064
Program Interest (PI) Number(s): 006148	Case	Tracking Number(s): VARIOUS
SECTION B. WELL CHANGE AND LOCATION		
SECTION B. WELL OWNER AND LOCATION  1 Name of Well Owner:  AMERADA HESS CORDORATION		
1. Name of Well Owner: AMERADA HESS CORPORATION		
2. Well Location (Street Address): 750 CLIFF ROAD		
Well Location (Municipal Block and Lot):	Block #: 760.02	Lot #: 1
SECTION C. WELL LOCATION SPECIFICS		
Well Permit Number (This number must be permanently affixed to t	the well casing).	2600011432
2. Site Well Number (As shown on application or plans):	ne wen edenig/.	BG-3
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:		DG-3
Latitude: North: 40 ° 33 ′ 41.088 ″	Longitude: West:	74 ° 14 ′ 21.699 ″
4. New Jersey State Plane Coodinates NAD 83 datum, US survey feet	t unite to nearest for	74 14 21.099
N	ast: 564537.7	
5. Elevation of Top of Inner Casing (cap off) at reference mark (neare		
Elevation Top of Outer casing:10.63 Elevation of	,	7.70
Check one: NAVD 88 NGVD 29 On Site Datum		7.70
Source of elevation datum (benchmark, number/description and ele here, assume datum of 100', and give approximated partial elevation.	vation/datum). If an	on-site datum is used, identify
here, assume datum of 100', and give approximated actual elevation NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)	n (referencing NAVI	D 88).
NAVD 88	)	
7. Significant observations and notes:  ON LANDS OF N/F BLICKEYE PORT READING TERMINAL LI		
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LI	LC	
SECTION D. LAND SURVEYOR'S CERTIFICATION		
I certify under penalty of law that I have personally examined and am fa	· · · · · · · · · · · · · · · · · · ·	SEAL
information submitted in this document and all attachments and that h	amiliar with the	-2 5 6 6
information submitted in this document and all attachments and that, but those individuals immediately responsible for obtaining the information	ased on my inquiry	of
those individuals immediately responsible for obtaining the information,	, I believe the	
submitted information is true, accurate and complete. I am aware that	there are significan	t , i sa i
penalties for submitting false information including the possibility of fine	and imprisonment.	<i>+</i>
Professional Land Surveyor's Signature:		Date: December 9, 2014
Surveyor's Name: James M. Stewart, PLS		License Number: 24GS02610800
	roject #: 1600	Certificate of Authorization #: 24GA28150900
failing Address: 2837 Ogden Avenue		
ity/Town: Bensalem	State: PA	Zip Code: 19020
hone Number: 215-268-7988	Ext: N/A	Fax: <u>215-268-7966</u>

L1-1

Form DWR-133 (4/82) STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION Mail to DIVISION OF WATER RESOURCES TRENTON, N.J. Water Allocation PERMIT TO DRILL WELL CN-029 Trenton, N.J. 08625 VALID ONLY AFTER APPROVAL BY THE D.E.P. AMERADA HESS JOSEPH TARASCO Driller Address So LIPPINICOTT SO! BURLING TON AVE EU, YSUBOOW DELANCO, NO Diameter of Well Proposed Depth of Well Name of Facility PORT READING REFINITEY 25 630 Feat Proposed Capacity of Pump Method of Drilling (cable-tool, rotary, Address \_\_\_\_ G.P.M.Use of Well (See Reverse) PORT READING INS GROUND WATER **LOCATION OF WELL** Lot# Block# Municipality County Draw sketch showing distance and relations of well site to PORT READING MIDDLESEX nearest public roads, streets, septic systems, etc. State Atlas Map No. 400 34. North twells, No. 1 LAND FARM West South SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this This Space for Approval Stamp permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS: WELL PERMIT Permit issued in accordance with provisions of letter of transmittal dated \_ APPROVED It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made. Samples of cuttings required every . OCT 1 1885 Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor. DEPT. ENV. PROTECTION Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building. DIV. OF WATER RESOURCES Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions WATER ALLOCATION of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises. Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well. In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as decribed above.

Signature of Owner

WATER ALLOCATION COPY

Date .

Form DWR- 138 11/80

#### STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

26-31-819 WELL RECORD

PERMIT NO. #26-8068-
APPLICATION NO.
COUNTY MIDDLESEX

1.	OWNER AMERADA HESS ADDRESS PORT READING NV
	Owner's Well Not FBG   SURFACE ELEVATION   12.8   Feet   [Above mean see [evel]]
2.	LOCATION NORTH LAND FARM
3,	DATE COMPLETED 10-18-85 DRILLER BAKEY Woodington
4,	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 15 Feet
5.	CASING: Type PVC Diameter 4 Inches Length 5 Feet
€.	SCREEN: Type PVC Size of Opening • 020 Diameter 4 Inches Length 10 Feet
	Range in Depth   Top Feet   Geologic Formation RARITAN - MAGOTHY  Geologic Formation RARITAN - MAGOTHY
	Tail Piecs: Diameter Inches Length Feet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	RECORD OF TEST: Date 10-19-85 Yield 2.5 Gallons per minute
	Static water level before pumping 6.9 Feet below surface
	Pumping level 6-9 feet below surface after 2 hours pumping
	Drawdown Feet Specific Capacity Gals, per min. per ft, of drawdown
	How pumped SHALLOW WELL SET How measured VOLUMETRICALLY
	Observed effect on nearby wells
<b>g</b> .	PERMANENT PUMPING EQUIPMENT: NO
	Type Mfrs. Name
	Capacity G.P.M. How Driven H.P. R.P.M
	Depth of Pump in well Feet Depth of Footpiecs in well Feet
	Depth of Air Line in well Feet Type of Meter on Pump Sizeinches
O.	USED FOR <u>GROUND WATER MONITORING</u> AMOUNT AMOUNT AMOUNT AMOUNT Gallons Daily
1.	QUALITY OF WATER Sample: Yes No
	Taste Odor Color Temp of.
2.	LOG SEE ATT A CHETO Are samples available? YES  (Give details on back of sheet or an separate sheet. If electric log was made, please furnish copy.)
3,	SOURCE OF DATA DRILLERS DESERVATIONS
4.	DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

## LIPPINCOTT ENGINEERING ASSOCIATES 501 BURLINGTON AVENUE DELANCO, N.J. 08075

DAT	DUECT LE	N(	), 3º 10/1	929.A1 8/85	<u> </u>	26-	31-819	SHEET 1 SURFACE	OF	,	7	R	<del></del> -
PRO	OJECT	<u> </u>	KLL II	NSTALLATI(	ON/NO.	26- 1 LAND PARM	CLIENT AMERI	ADA HESS					
LO	CATIO	N _	PO	RT READING	G REFI	NERY	LOG OF BORING	NO. LF-	BG-	-1			
DEPTH		TYPE #	SAMPLE DEPTH	MAMBER BLOW PER	s 🟲	DASED ON SAMPL	CATION OF MATE ES RECOVERED PLUS RETURNED BETWEEN	RIALS OBSERVATION	мо	ISTUR	E C	ONT	ENT
0	S-1	A	2	11-13-15	5-17		ine SAND, little g		le				
-5 .	S-2	A	4/	8-8-10-9	2	Same.			-				
	\$-3	A	9/	11-10-8-	0			:					
10			11			Same.							
15			16	4-4-5-3		Same. Dark brown orga	anic SILTY CLAY.		-				_
	S-5	A	16/ 18	1-2-2-3		Same.							
1							EOB 18'-0"						
						,							
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$\frac{1}{1}$													***************************************
	•												
	GROUN PTH		VATER	DATA DATE	1		Enetration test (as			106	Re	v.	2/77
	-2#	1 h		10/18/85			HIN-WALLED 3" TUBE		)				•

DRILLER B. WOODINGTON

E. DORON

HELPER



# New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp (For Department use only)

			(For Department use only)
SECTION A. SITE NAME AND LOCATION			
Site Name: Hess Former Port Reading Complex			ı
List all AKAs:			
Street Address: 750 Cliff Road			
Municipality: Township of Woodbridge		(Township, Borough or City)	
County: Middlesex		Zip Code: 07 <u>0</u> 64	·
Program Interest (PI) Number(s):		Case Tracking Number(s)	
SECTION B. WELL OWNER AND LOCATION			
Name of Well Owner			
Well Location (Street Address)			
3. Well Location (Municipal Block and Lot) Block	k#	Lot#	
SECTION C. WELL LOCATION SPECIFICS	<del></del>		1, 100 L
Well Permit Number (This number must be permanen	itly affixed to t	he well casing): 260008068	1
2. Site Well Number (As shown on application or plans):	•		
3. Geographic Coordinate NAD 83 to nearest 1/100 of a			A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Latitude: North 40°33'40.67"		ngitude: West 74°14'29.29"	
4. New Jersey State Plane Coordinates NAD 83 datum,			
North 629483	Eas	st 563952	
5. Elevation of Top of Inner Casing (cap off) at reference	mark (neare	est 0.01'): 9.91	
Elevation Top of Outer casing: 10.15	Elevation o	of ground: 10.14 (PAVE)	
Check one: ⊠ NAVD 88 ☐ NVGD29 ☐ Or	Site Datum	Other	
6. Source of elevation datum (benchmark, number/describere, assume datum of 100', and give approximated a	ription and ele actual elevatio	evation/datum). If an on-site on transite of the control of the co	datum is used, identify
BENCHMARK: NJTP PISCATAWAY CORPS ARP ELEV.= 109.56' (NAVD 88 DATUM)			
7. Significant observations and notes:			
		·	
SECTION D. LAND SURVEYOR'S CERTIFICATION		SEAL	
I certify under penalty of law that I have personally examined information submitted in this document and all attachments a	and am famili	ar with the	
those individuals immediately responsible for obtaining the in	formation, I be	elieve the	
submitted information is true, accurate and complete. I am a penalties for submitting false information including the possible po	ware that there pility of fine and	e are significant d imprisonment	
Professional Land Surveyor's Signature:	mily or mile are	A HIIPHOOMHOM.	Date 12/21/2017
Surveyor's Name: Steven D. Parent		License Numbe	
Firm Name: DPK Consulting, LLC		Certificate of Authorization	
Mailing Address 220 Old New Brunswick Road Suite	201	_ J. M. GOLD OF FIGURE OF LAUTON	
City/Town: Piscataway	State Ne	w Jersey Zip	Code: 08854
Phone Number 732.764.0100	Ext.:		.764.0990

L1-2

Form DWR-133 (4/82) STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION Mail to **DIVISION OF WATER RESOURCES** TRENTON, N.J. Permit No. 26040 Water Allocation PERMIT TO DRILL WELL CN-029 26.31.9 Trenton, N.J. 08625 VALID ONLY AFTER APPROVAL BY THE D.E.P. Owner AMERADA HESS JOSEPH TARASCO Driller I HESS PLAZA Address So LIPPINCOTT SUI BURLINGTON AVE WOODBIRY, NJ DELANCO, NJ Diameter of Well Proposed Depth of Well Name of Facility PORT READING REFINERY Inches 25 630 Foot Proposed Capacity of Pump Method of Drilling (cable-tool, rotary, STATE ST Address \_ G.P.M.RUTARY (ALG Use of Well (See Reverse) PORT READING NO GROUND WATER MON TORING **LOCATION OF WELL** Lot# 8lock# Municipality County Draw sketch showing distance and relations of well site to PORT READING MIDDLESEX nearest public roads, streets, septic systems, etc. State Atlas Map No. 400 34. North SEE ATTACHED DEAWNO twells, No. 1 LAND FARM West South SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this This Space for Approval Stamp permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS: WELL PERMIT Permit issued in accordance with provisions of letter of transmittal dated \_ APPROVED It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made. Samples of cuttings required every OCT 1 1985 Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor. DEPT. ENV. PROTECTION Domestic Irrigation Supply - No piping from the well for which the parmit applies shall enter any building. DIV. OF WATER RESOURCES Industrial/Commerical Supply - A physical connection permit shall be obtained pursuant to the provisions WATER ALLOCATION of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises. Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well. In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as decribed above. Date Signature of Owner WATER ALLOCATION COPY

Form DWR- 138 11/80

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

26-31-819 WELL RECORD

PERMIT NO. #26-8065-	,
APPLICATION NO.	
COLLEGE ALIDOLESES	

1.	OWNER AMERADA HESS ADDRESS PORT READING, N.
	Owner's Well No. DG / (LF-1) SURFACE ELEVATION /O. (Above mean sea level) Feet
2.	LOCATION NORTH LAND FILL (Above mean see level)
3.	DATE COMPLETED 10-18-85 DRILLER JOHN SAYDER
4.	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 14 0 Feet
5.	CASING: Type PVC Diemeter 4 Inches Length 4.0 Feet
6.	SCREEN: Type PVC Size of Opening 2020" Diameter 4 Inches Length 10 Feet
	Range in Depth     Top Feet   Geologic Formation   CARITAD -MAGOTHY
	Tail Place: Diameter Inches Length Feet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	Contons per minore
	Static water level before pumping Feet below surface
	Pumping level 14-0 feet below surface after 21/2 hours pumping
	Drawdown Feet Specific Capacity Gals, per min, per ft, of drawdown
	· · · · · · · · · · · · · · · · · · ·
	How pumped SHALLOW INFLL JET How measured VOLUMETRICALLY
9.	How pumped SHALLOW LUFLL JET How measured VOLUMETRICALLY
9.	How pumped SHALLOW INFIL SET How measured VOLUMETRICALLY  Observed effect on nearby wells
9.	How pumped SHALLOW (DELC SET How measured VOLUMETRICALLY  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: NO
9.	How pumped SHALLOW INFLC SET How measured VOLUMETRICA (C.Y.  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: A/O  Type Mfrs. Name  Capacity G.P.M. How Driven H.P R.P.M  Depth of Pump in well Feet Depth of Footpiece in well Feet
9.	How pumped SHALLOW INFLC JET How measured VOLUMETRICA (C.Y.  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: AO  Type Mfrs. Name  Capacity G.P.M. How Driven H.P R.P.M
	How pumped SHALLOW INFLC JET How measured VOLUMETRICA (C.Y.  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: A/O  Type Mfrs. Name  Capacity G.P.M. How Driven H.P R.P.M  Depth of Pump in well Feet
10.	How pumped SHALLOW INFLC JET How measured VOLUMETRICA (C.Y.  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: No.  Type Mirs, Name  Capacity G.P.M. How Driven H.P R.P.M  Depth of Pump in well Feet
10.	How pumped SHALLOW INFLC JET How measured VOLUMETRICA (C.Y.  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: A/O  Type Mfrs. Name  Capacity G.P.M. How Driven H.P R.P.M  Depth of Pump in well Feet
10.	How pumped SHALLOW INFLC JET How measured VOLUMETRICA (CY  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: No.  Type
10. 11.	How pumped SHALLOW INFIL JET How measured VOLUMETRICACLY  Observed effect on nearby wells  PERMANENT PUMPING EQUIPMENT: No.  Type Mfrs. Name  Capacity G.P.M. How Driven H.P R.P.M  Depth of Pump in well Feet

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

HELPER T. LIPPINCOTT

### LIPPINCOTT ENGINEERING ASSOCIATES

	A : C A *			501	BURLINGTON AVENUE DELANCO, N.J. 08075				
	TE			929.A1	SHEET 2	OF.		7	
					SURFACE E	LEV	1	0.0	<u> </u>
اد	OJECT	- 1	ELL I	NSTALLATION/N	O. 1 LAND PARM CLIENT AMERADA HESS				
0	CATIO	٧_	PO	RT READING RE	PINERY LOG OF BORING NO. LP-1	IV.	. 1	L	1-1
					Permit No. 26-8065				
Ξ	7. X	*	r. H	NAMBER OF	CLASSIFICATION OF MATERIALS	T	**********		- New York and Assessment
DEPTH	SAMPLE NUMBER	TYPE	SAMPLE	BLOWS PER 6"	HASED ON SAMPLES RECOVERED PLUS OBSERVATION	MOIS	TUR	E ¢	ONTEN
10	*	<del>†</del>	0/		OF MATERIAL RETURNED BETWEEN SAMPLES	-	_		_
			2		Brown coarse-fine SAND, little gravel, little silt.				
-	<u> </u>	<u> </u>	ļ			] .			
-	S-2	A	4/	4-7-10-11	Brown coarse-fine GRAVEL & coarse-fine SHALE,				
			6		trace silt.		-	<u> </u>	_
<u> </u>	<u> </u>	<u> </u>					1		
	<del> </del>								
10.	S-3	A	9/	7-8-6-3	Light brown, same.		1		
-		<u> </u>	11		·			•	$\top$
		-						- 1	
	S-4	A	13/	2-2-1-1	Dark brown organic SILTY CLAY.			1	
15			15						
					EOB 15'-0"				
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	GROUN	C	WATER	DATA	к.	R-1	06	Re	v.2
<u> </u>	EPTH	÷	OUR	-DATE	A. STANDARD PENETRATION TEST (ASTM-D 1586)				
	-3"			10/16/85	B. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1687) C. CORE DRILLING				
	-11" -2"			10/18/85	C. CORE PRILLING				
				and the state of t					

B. WOODINGTON



### New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only

SECTION A DITE WAS AND				(For Department use only
SECTION A. SITE NAME AND				
	HESS CORPORATION			
	PORT READING TERMINAL L	LLC		
Street Address: 750 CLIFF				
	DGE TOWNSHIP (PORT REAL	DING)	(Township, Borough	or City)
County: MIDDLESE				07064
Program Interest (PI) Number(s):	006148	Case	Tracking Number(s):	
SECTION B. WELL OWNER AN	ID LOCATION			
Name of Well Owner:A		ON		
2. Well Location (Street Address):	: 750 CLIFF ROAD	011		
Well Location (Municipal Block		Block #: 760.02	Lot #: 1	1
SECTION C. WELL LOCATION				
SECTION C. WELL LOCATION 1  1. Well Permit Number (This number)		d to the well essine).	000000000	
Site Well Number (As shown or	annlication or plane)	d to the well casing):	2600080656	
Geographic Coordinates NAD 8	33 to nearest 1/100 of a second		L1-2	
Latitude: North: 40 ° 33 '	AA 262 "		74.0.44.4.00.000	
		Longitude: vvest	: 74 ° 14 ′ 27.377 ″	
<ol> <li>New Jersey State Plane Coodin</li> <li>North: 629846.79</li> </ol>	ales NAD 83 datum, US surve			
	a (con off) at reference well (	East: 564098.5		
<ol><li>Elevation of Top of Inner Casing Elevation Top of Outer casing:</li></ol>			9.05	
Check one:  NAVD 88		on of ground:	7.63	
6. Source of elevation datum (bend	chmark, number/description and	d elevation/datum). If ar	n on-site datum is used	, identify
here, assume datum of 100', and	d give approximated actual ele	vation (referencing NAV	/D 88).	
	(EPOCH 2010.0000) (GEOID	12A)		
NAVD 88				
7. Significant observations and not				
ON LANDS OF N/F BUCKE	YE PORT READING TERMINA	AL, LLC		
SECTION D. I AND SUDVEYOR				
SECTION D. LAND SURVEYOR'S			SEAL	Cr C.
I certify under penalty of law that I h	nave personally examined and	am familiar with the	SEAL	Street Street
information submitted in this docum	ient and all attachments and th	at, based on my inquiry	of	
those individuals immediately response	onsible for obtaining the information	ation, I believe the	- Cau	1/3/4 1/2
submitted information is true, accur	ate and complete. I am aware	that there are significan	nt 💆 🚾	
penalties for submitting false inform	ation including the possibility o	of fine and imprisonment		***
Professional Land Surveyor's Signat		$\sim$	Date: De	ecember 9, 2014
Surveyor's Name: James M. Stewar	t, PLS	•	License N	umber: 24GS02610800
irm Name: Dennis W. Sklar, Inc.		Project #: 1600	Certificate of Authoriza	
Mailing Address: 2837 Ogden Avenu	ie e			
city/Town: Bensalem		State: PA	Zir	Code: 19020
Phone Number: 215-268-7988		Ext: N/A	Fax: 215-268	

L1-3

Form DWR-133 (4/82) STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION Mail to **DIVISION OF WATER RESOURCES** Permit No. 2600 TRENTON, N.J. Water Allocation PERMIT TO DRILL WELL CN-029 26.31.9Trenton, N.J. 08625 VALID ONLY AFTER APPROVAL BY THE D.E.P. AMERADA HESS JUSEPH TARASCO Driller 1 HESS PLAZA Address \_ LIPPINCOTT Address <u>%</u> SOI BURLING TON AVE WOODBURY NJ DELANCO, NJ Diameter of Well Proposed Depth of Well Name of Facility PORT READING REPINIERY Inches 25 %30 Feet Proposed Capacity of Pump Method of Drilling (cable-tool, ratary, STATE ST G.P.M. RUTARY I MIGEL Use of Wall (See Reverse) PORT READING NIS GROUND WATER LOCATION OF WELL Lot# Block# Municipality County Draw sketch showing distance and relations of well site to PORT READING nearest public roads, streets, septic systems, etc. State Atlas Map No. 400 34. North SEE ATTACHED DRAWING twells, No. 1 LAND FARM West South SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this This Space for Approval Stamp permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS: WELL PERMIT Permit issued in accordance with provisions of letter of transmittal dated \_ APPROVED It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made. Samples of cuttings required every . OCT 1 1885 Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor. DEPT. ENV. PROTECTION Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building. DIV. OF WATER RESOURCES Industrial/Commerical Supply - A physical connection permit shall be obtained pursuant to the provisions WATER ALLOCATION of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises. Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.

WATER ALLOCATION COPY

Signature of Owner

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as decribed above.

Date

Form DWR- 138 11/80

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

26-31-819

PERMIT NO. <b>26-<sup>0</sup>8066</b> -	. L
APPLICATION NO.	,
COUNTY MIDDLESEX	

### WELL RECORD

1.	OWNER AMERADA HEST ADDRESS PORT READING NI
	Owner's Well No. DG-2 SURFACE ELEVATION 10,3 Feet (Above mean see level)
2.	LOCATION NORTH LAND FULL
3.	DATE COMPLETED 10-19-85 DRILLER BARRIE WOOD 16 TON
4.	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9-4 Feet
5,	CASING: Type PVC Diameter 4 Inches Length 9.4 Feet
6.	SCREEN: Type PVC Size of Opening 020" Diameter 4 Inches Length 5.0 Feet
	Range in Depth { Top Feet   Geologic Formation RARITAN - MACOTHY   Geologic Formation RARI
	Tail Piece: Diameter Inches LengthFeet
7,	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	RECORD OF TEST: Date
	Static water level before pumping 6'9". Feet below surface
	Pumping level 9-4 feet below surface after 2/12 hours pumping
	Drawdown Faet Specific Capacity Gals, per min, per ft, of drawdown
	How pumped SHALOW WELL LET How measured VOLUMETRICALLY
	Observed effect on nearby wells
9.	PERMANENT PUMPING EQUIPMENT: NO
	Type Mfrs, Name
	Capacity G.P.M. How Driven H.P. R.P.M.
	Depth of Pump in well Feet Depth of Footpiece in well Feet
	Depth of Air Line in well Feet Type of Meter on Pump SizeInches
	USED FOR GROWNO WATER MONITORING AMOUNT  Average Gallons Daily  Maximum Gallons Daily
1.	QUALITY OF WATER No No
	Taste Odor Color Temp or
2.	LOG SEE ATTACHED Are samples available? YES (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
	SOURCE OF DATA DRILLER'S OBSTRIATIONS
	DATA OBTAINED BY JOE Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

### LIPPINCOTT ENGINEERING ASSOCIATES 501 BURLINGTON AVENUE DELANCO, N.J. 08075

PR( DAT	DJECT E	NO 1	0/18/8	3929.A1 35	26-31-819 SHEET 3 SURFACE E	_OF_ LEV		.3	<del></del>
PR(	DJECT	W	ELL IN	STALLATION	/NO. 1 LAND PARM CLIENT AMERADA HESS				
					G REFINERY LOG OF BORING NO. LP.	-1 DG			
	Permit No. 26-8066								
DEPTH	SAMPLE NUMBER	, Jak	SAMPLE DEPTH	BLOWS	CLASSIFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION		#1 was		
		<del></del>		PER 6"	OF MATERIAL RETURNED BETWEEN SAMPLES	MU13	UNE	CUNI	ENI
0	S-1	A	0/ 2	2-3-5-5	Brown coarse-fine SAND, some silt, little gravel.				
5 -	\$-2	A	4/	3-7-10-12	Same.				
			Ž			1			
10-	S-3	A	9/ 11	1-1-1-4	Dark brown organic SILTY CLAY, little peat.	<u> </u>			
					EOB 11'-0't				
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	-						The state of the s		
$\exists$									
	GROUN	) V	WATER	DATA		R-1	06 I	₹ev.	2/7
Df	PTH	ŀ	IOUR	DATE	A. STANCARD PENETRATION TEST (ASTM-D 1586)				
Д., 71	-6"			10/18/85	B. STANDARD THEN-WALLED 3" TUBE (ASTM-D 1587)	Ė			

B. WOODINGTON

HELPER\_



### New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp

		(For Department use only
SECTION A. SITE NAME AND LOCATION		
Site Name: AMERADA HESS CORPORATION	,	
List all AKAs: BUCKEYE PORT READING TERMINAL I	LLC	
Street Address: 750 CLIFF ROAD		
Municipality: WOODBRIDGE TOWNSHIP (PORT REA	DING)	(Township, Borough or City)
County: MIDDLESEX		Zip Code: 07064
Program Interest (PI) Number(s): 006148	Case	Tracking Number(s): VARIOUS
SECTION B. WELL OWNER AND LOCATION		
Name of Well Owner:AMERADA HESS CORPORATION	ON	
Well Location (Street Address): 750 CLIFF ROAD	ON	
3. Well Location (Municipal Block and Lot):	Block #: 760.02	1 04 #4. 4
(Managar Diode and Loty.	DIOCK #. 760.02	Lot #: 1
SECTION C. WELL LOCATION SPECIFICS		
<ol> <li>Well Permit Number (This number must be permanently affixed)</li> </ol>	ed to the well casing):	2600080664
<ol><li>Site Well Number (As shown on application or plans):</li></ol>		L1-3
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second	d:	
Latitude: North: 40 ° 33 ' 44.093 "	Longitude: West	: 74 ° 14 ′ 24.406 ″
4. New Jersey State Plane Coodinates NAD 83 datum, US surve	v feet units, to nearest for	oot.
North: 629830.29	East: 564327.8	
5. Elevation of Top of Inner Casing (cap off) at reference mark (	nearest 0.01'):	9.33
<b>-</b> ! " <b>-</b>	ion of ground:	8.31
Check one:   NAVD 88 NGVD 29 On Site I		5.01
6. Source of elevation datum (benchmark, number/description and		on-site datum is used identify
here, assume datum of 100', and give approximated actual ele	evation (referencing NAV	/D 88)
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID	12A)	D 00).
NAVD 88	.2.9	
7. Significant observations and notes:		
ON LANDS OF N/F BUCKEYE PORT READING TERMINA	AL II C	
TENNING TENNING	AL, LLO	· .
SECTION D. LAND SURVEYOR'S CERTIFICATION		SEAL
I certify under penalty of law that I have personally examined and	am familiar with the	SEAL
information submitted in this document and all attachments and the	nat hased on my inquiry	of - in the second
those individuals immediately responsible for obtaining the inform	ation. I believe the	
submitted information is true, accurate and complete. I am aware	that there are cignifican	
penalties for submitting false information including the possibility of	of fine and imprisonment	
	in line and imprisonment	
Professional Land Surveyor's Signature:	34	Date: December 9, 2014
Surveyor's Name: James M. Stewart, PLS		License Number: 24GS02610800
Firm Name: Dennis W. Sklar, Inc.	_ Project #: 1600	Certificate of Authorization #: 24GA28150900
Mailing Address: 2837 Ogden Avenue		
City/Town: Bensalem Phone Number: 215-268-7988	State: PA	Zip Code: 19020
110116 NulliDel. 210-200-7900	Ext: <u>N/A</u>	Fax: 215-268-7966

L1-4

4-4 8067 Form DWR-133 (4/82) STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION Mail to DIVISION OF WATER RESOURCES TRENTON, N.J. Water Allocation PERMIT TO DRILL WELL CN-029 26.31.9Trenton, N.J. 08625 VALID ONLY AFTER APPROVAL BY THE D.E.P. Owner \_\_AMERADA HESS JOSEPH TABASCO Address 1 HESS PLAZA Address So LIPPINICOTT SOI BURLING TON AVE WOODBIRY, NJ DELANCO. 143 Diameter of Well Proposed Depth of Well Name of Facility PORT READINGREFINERY 25 630 Proposed Capacity of Pump Method of Drilling (cable-tool, rotary, STATE G.P.MRUTARY (ALGER) Use of Well (See Reverse) PORT READING INS GROUND WATER LOCATION OF WELL Lot# Block# Municipality County Draw sketch showing distance and relations of well site to PORT READING nearest public roads, streets, septic systems, etc. State Atlas Map No. 40° 34. North SEE ATTACHED DEAWING twells, No. 1 LAND FARM West South SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this This Space for Approval Stamp permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS: WELL PERMIT Permit issued in accordance with provisions of letter of transmittal dated \_ APPROVED It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made. Samples of cuttings required every . OCT 1 1985 Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor. DEPT. ENV. PROTECTION Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building. DIV. OF WATER RESOURCES Industrial/Commerical Supply - A physical connection permit shall be obtained pursuant to the provisions WATER ALLOCATION of N.J.A.C. 7:10-10-1 et. seq., and a vigorous cross connections control program shall be instituted and maintained within the premises. Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well. In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as decribed above. Date Signature of Owner

WATER ALLOCATION COPY

om DWR- 138 1/80

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

26-31-819 · WELL RECORD

PERMIT NO. 26-8067-2
APPLICATION NO.
COUNTY MIDDLESEX

1.	OWNER AMERADA HESS ADDRESS FORT READING NJ
	Owner's Well No. 263 SURFACE ELEVATION /// [Above mean sea level]
2.	LOCATION NORTH LAND FILL (Above mean see level)
3.	DATE COMPLETED 10-18-85 DRILLER JOHN SAYDER
4.	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 9-0 Feet
5.	CASING: Type PVC Diameter 4 Inches Length 4.0 Feet
6.	SCREEN: Type PVC Size of Opening . 0 20" Diameter 4 Inches Length 5.0 Feet
	Range in Depth    Top Feet   Geologic Formation PARITON _MAGOTHY
	Tail Piece: Diameter Inches LengthFeet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
-	Water rises to Feet above surface
8.	RECORD OF TEST: Date 11-11-8.5 Yield 1-5 Gallons per minute
	Static water level before pumping 7'6" Feet below surface
	Pumping level 9-0 feet below surface after 3 hours pumping
	Drawdown Faet Specific Capacity Gals, per min, per ft. of drawdown
	How pumped SHALLOW WELL JET How measured VOLUMETICICALLY
	Observed effect on nearby wells
9.	PERMANENT PUMPING EQUIPMENT: NO
	Type Mfrs, Name
	Capacity G.P.M. How Driven H.P. R.P.M.
	Depth of Pump in well Feet Depth of Footpiece in well Feet
	Depth of Air Line in well Feet Type of Meter on Pump Sizeinches
	USED FOR GROUND WATER MONITORING AMOUNT  AMOUNT  AMOUNT  AMOUNT  Gallons Daily  Gallons Daily
11.	QUALITY OF WATER A/_ A Sample: Yes No
	Taste Odor Color Temp, or_
12.	-LOG SEE AFFACHED Are samples available? YES  [Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
	SOURCE OF DATA DRULLER'S OBSERVATIONS
14.	DATA OBTAINED BY Joe Tabasco Date 11-26-85

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

# LIPPINCOTT ENGINEERING ASSOCIATES

Pr Da	ROJECT	N(	). <u> </u>	929.A1	SHEET 4 OF	7
	•			<del>-</del>	NO. 1 LAND PARM CLIENT AMERADA HESS	11.1
						// //
		****	* `	TH DISTORDER AND	EFINERY LOG OF BORING NO. LP-1 DG-3 Permit No. 26-8067	21-4
E	SAMPLE NUMBER	*	£.	NUMBER OF	CLASSIFICATION OF MATERIALS	
DEPTH	NG S	TYPE	SAMPLE	BLOWS PER 6"	BASED ON SAMPLES RECOVERED PLUS OBSERVATION MOISTUR OF MATERIAL RETURNED BETWEEN SAMPLES	RE CONTENT
0	S-1	A	0/	5-8-9-12	Brown coarse-fine SAND, little grayel, little	
					silt.	
-5	S-2	Ā	4/	5-4-4-5	Brown coarse-fine SAND, some silt, little	
F		_	6		gravel.	
10.	S-3	A	9/	1-2-1-1	Dark brown organic SILTY CLAY.	
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	GROUNE	) <b>V</b> å	ATER	DATA	P106	Rev.2/
	РТН	**********	OUR	DATE	A. STANDARD PENETRATION TEST (ASTM-D 1586)	xev.2/
7.	-6"			10/17/85	8. STANDARD THIN-WALLED 3" TUBE (ASTM-D 1587) C. CORE DRILLING	
			1		DRILLER J. SNYDER MELPER E. DORON	



### New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp

OF OTHER DESIGNATION AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS O			(For Department use only
SECTION A. SITE NAME AND LOCATION		, , , , , , , , , , , , , , , , , , , ,	
Site Name: AMERADA HESS CORPORATION			
List all AKAs: BUCKEYE PORT READING TERMINAL LLC			
Street Address: 750 CLIFF ROAD			
Municipality: WOODBRIDGE TOWNSHIP (PORT READING)	)	(Township, Borough	or City)
County: MIDDLESEX			07064
Program Interest (PI) Number(s): 006148	Case	Tracking Number(s):	
		3	***************************************
SECTION B. WELL OWNER AND LOCATION			
Name of Well Owner: AMERADA HESS CORPORATION			
Well Location (Street Address): 750 CLIFF ROAD			
Well Location (Municipal Block and Lot):	Block #: 760.02	Lot #:	1
	700.02		
SECTION C. WELL LOCATION SPECIFICS			
1. Well Permit Number (This number must be permanently affixed to the	ne well casing):	2600080672	
2. Site Well Number (As shown on application or plans):	3,	L1-4	
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:			
Latitude: North: 40 ° 33 ' 43.039 "	Longitude: West	: 74 ° 14 ′ 23.707	"
4. New Jersey State Plane Coodinates NAD 83 datum, US survey feet			
North COOTOO OF	ast: 564382.1		
5. Elevation of Top of Inner Casing (cap off) at reference mark (neares			
Elevation Top of Outer casing: 11.06 Elevation of	,	10.85	
Check one: NAVD 88 NGVD 29 On Site Datum		9.07	
6. Source of elevation datum (benchmark, number/description and elevation assume datum of 100), and give approximated actual elevation	/ation/datum). If ar	n on-site datum is used	d, identify
here, assume datum of 100', and give approximated actual elevation NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)	(referencing NAV	/D 88).	
NAVD 88			
7. Significant observations and notes:	_		
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, LL	.C		
CECTION D. LAND CURVEY CO.			11 .
SECTION D. LAND SURVEYOR'S CERTIFICATION		SEAL	Section .
I certify under penalty of law that I have personally examined and am fa	ımiliar with the		J
information submitted in this document and all attachments and that, batter in the state of the	ised on my inquiry	of	
those individuals immediately responsible for obtaining the information,	I believe the	:	and the state of t
submitted information is true, accurate and complete. I am aware that t	here are significar	nt 🛴	
penalties for submitting false information including the possibility of fine	and imprisonment	t./	
Professional Land Surveyor's Signature:	$\setminus \bigcup \mathcal{J}$	Date: D	ecember 9, 2014
Surveyor's Name: James M. Stewart, PLS		License N	
Signa Names Danais M. Oll.	oject #: 1600	Certificate of Authoriz	
Mailing Address: 2837 Ogden Avenue	2,000 m. 1000	Cerunicate of Authoriz	zation #: 24GA28150900
City/Town: Bensalem	State: PA	7:	in Code: 10000
Phone Number: 215-268-7988	Ext: N/A		ip Code: 19020
	LXL <u>IV/A</u>	Fax: <u>215-26</u>	00-7 900

L1-6

Mail to

STATE OF NEW JERSEY

DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J. 416

Permit No. 2(011434

#### Water Allocation CN 029 PERMIT TO DRILL WELL Trenton, N.J. 08625 VALID ONLY AFTER APPROVAL BY THE D.E.P. Owner AMERADA HESS Driller ED DOROW-LIPPINCOTT ENG. Address / NESS PLAZA Address 501 BUKLINGTON WOODBURY, N.J. 07095 Name of Facility PORT REPOING REFINERS Diameter of Well Feet Method of Drilling GPM (cable-tool,rotary,etc. Capacity of Pump FORT READING, N.J. Use of Well (See Reverse **LOCATION OF WELL** Municipality Block# County Draw sketch showing distance and relations of well site to WOODBRIDGE MIDDLESEX nearest public roads, streets, septic systems, etc. State Atlas Map No. North LANDFAR BAY \* 1 East South SEE REVERSE SIDE for IMPORTANT PROVISIONS AND REGULATIONS pertaining to this permit. APPROVAL of this permit is made SUBJECT TO acceptance of and compliance with the following ADDITIONAL CONDITIONS. This Space for Approval Stamp Pinelands - Well must be drilled over 100' deep or a clay layer at least 4' in thickness must be encountered. It is necessary that Geophysical Logs of this well be made. Permanent pumping equipment SHALL NOT be installed until such logs are made. Authorization by rule under N.J.A.C. 7:14A-1 et seq. Samples of cuttings required every \_\_\_\_ feet or change in material. The results of a volatile organic scan mut be obtained prior to using the water and submitted to Domestic Potable Water Supply - The service line for water from the public community water supply system shall be turned off at the curb cock, and the meter shall be removed by the water purveyor. Domestic Irrigation Supply - No piping from the well for which the permit applies shall enter any building. ACCOM. Industrial/Commercial Supply - A physical connection permit shall be obtained pursuant to the provisions of N.J.A.C. 7:10-10-1 et seq., and a vigorous cross connections control program shall be instituted and maintained within the premises. Heat Pump Wells - Wells must be 50 feet apart and the water must be returned to the same aquifer as the production well.

In compliance with R.S. 58:4A-14, application is made for a permit to drill a well as described above.

COPIES: Water Allocat

Date \_

Water Allocation - White Health D.

Signature of Owner Health Dept. — Yellow

Owner - Blue

Driller – White

26.31.926

Form DWR- 138 11/80

# STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

# APPLICATION NO. \_\_\_\_\_\_

# FOR OBSERVATION PURPOSES ONLY

#### WELL RECORD

۰	AND AND ADOLLOSS LUNG MINERAL AND LONG
1	. OWNER AMERAJA HESS ADDRESS I HESS PLAZA Woodbridge No.
	Owner's Well No. 11-6 SURFACE ELEVATION [Above mean sea lavel]
2	LOCATION PORT READ REFINERY STATE ST.
3.	DATE COMPLETED 9-15-87 DRILLER Fluored VOREN
4.	DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 14 Feet
5,	CASING: Type Pue Diameter 4" Inches Length 6 Feet
6,	SCREEN: Type <u>Puc</u> Size of Opening <u>6,20</u> Diameter <u>4</u> Inches Length <u>10</u> Feet
	Renge in Depth { Top Feet   Geologic Formation   Kilkhood   Sottom Feet   Geologic Formation   Geologic Formation   Kilkhood   Geologic Formation   Kilkhood   Geologic Formation   Kilkhood   Geologic Formation   Geologic Formati
	Tail Pisce: DiameterInches LengthFeet
7.	WELL FLOWS NATURALLY Gallons per minute at Feet above surface
	Water rises to Feet above surface
8.	RECORD OF TEST: Date 9-16-87 Yield 1 Gallons per minute
	Static water level before pumping 3 911 Feet below surface
	Pumping level feet below surface after hours pumping
	DrawdownFeet Specific Capacity Gals, per min, per ft. of drawdown  How pumpedFeet Specific Capacity Gals, per min, per ft. of drawdown  How measured
9.	PERMANENT PUMPING EQUIPMENT:
	Type/ Mfrs. Name
	Capacity G.P.M. How Driven H.P R.P.M
	Depth of Pump in well Feet Depth of Footpiece in well Feet
	Depth of Air Line in well Feet Type of Meter on Pump Sizeinches
10.	USED FOR Groundwater monitoring AMOUNT AMOUNT
11.	QUALITY OF WATER Sample: Yes No
	Taste Oder Color Temp _ 95
12.	LOG SEE ATTACA ed Boring Log & Are samples available? YET
13.	SOURCE OF DATA PHILLER OPER VATION & NOASURMENT
14,	DATA OBTAINED BY Edward DORON DOLO 9-16-87

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, ensitysis of the water, sketch map, sketch of special casing arrangements, etc.)

501 BURLINGTON AVENUE DELANCO. N.J. 08075

24.31.926 2611434

AT	7-	-15	3929		SHEETSURFACE E	LEV	
RO	JECT	<del></del>			CLIENT		
OC	AOITA	1 _/	RD F	RADA H	ess Log of Boring No. 4/-	6	2
	SAMPLE RUMBER	rype ⁴	SAMPLE	NUMBER OF BLOWS	CLASSIFICATION OF MATERIALS BASED ON SAMPLES RECOVERED PLUS OBSERVATION	MOISTURE	E CONTER
2	<i>U</i> 22	<u>-</u>	0/5	<b>PER 6"</b> 3~9°	OF MATERIAL RETURNED BETWEEN SAMPLES	<del>                                     </del>	
1			12	8-16	Brown SAND 11/E DANK Brown SAND 11/E Brown SAND 11/C		
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GROUND WATER DATA

DEPTH HOUR DATE a. Standard Penetration Test (astm-d 1888)

- B. STANDARD THEN-WALLED 3" TUBE (ASTM-D'1887)
- C. COME DRILLING

# SP-1

COPIES:

Water Allocation — White and Pink

Mail to Water Allocation CN 029

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

2425 338 2625 339 2625 340

(908 750-6000)

Driller -- White WELPMT 070 1156

Permit No. \_\_

### **MONITORING WELL PERMIT**

PORT Reading, NJ. 07064  DOCATION OF WELL(S)  Location of Well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  State Atlas Map No. 26  Woodbridge  Middlesex  State Atlas Map No. 26  No Montroring Wells, Recovery Wells, OR PEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PUPLICANT, PREASE ROICATE WHY THE WELLS ARE BEING INSTALLED.  This Spect for Approxy Stamp Well. First Spect for	VALID O	NLY AFTER APPROVA	L BY THE D.I	COOF	3. مانه # D	31.697
Name of Facility  Port Reading Refinery  Address  750 Cliff Road  Port Reading, NJ 07064  Top of Well  T	OwnerAmerada Hess (Port Reading Co	orp) Driller	Environme	ental Dri	ling Inc.	
Name of Facility Port Reading Refinery   Dander   2   notes   Depth of Mat(s)   12   following   12   following   12   following   13   following   14   following   14   following   14   following   15   follow	Address Hess Plaza	Addres	s 328 Staffe	ord Forge	Rd.,	
Address 750 Cliff Road	Woodbridge, NJ 07095	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	West Cree	k, NJ 08	3092	
Address 750 Cliff Road Port Reading, NJ 07064 See See See See See See See See See Se	Name of FacilityPort Reading Refine	Diameter				12 -
PORT Reading, NJ 07064    The Special Properties   Pleasure   Plea	Address 750 Cliff Road	<del></del>		Inches		
Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  **Middlenex**  **Middlenex**  **An a name and/or number on the sketch.**  **PICANT PLEASE INDICATE WHY THE WELLS, OR PREZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PRICANT PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED.**  **Spill Fund Case**  **CERCIA (Superfund) Size**  **GRCA Size**  **Underground Storage Tank**  **NPDES Municipal Discharge Permit*  **NPDES Municipal Discharge Permit*  **Div Hazardous Waste Mgmt. Enforcement Case**  **Div. Water Resources Enf	Port Reading, NJ 07064	Type of \	Well	3 ometer	If Yes, give	pump
This space for Apperoral Stamp No.  26  Niddlesex  State Atlas Map No.  26  Spill  Spi		LOCATION OF WEL	L(S)			
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le 6-7-7/ Signature of Driller C. License # //30	1-4-41	Cianature of Dailler	8.0	Tana	e	· 1/30

Signature of Owner

Health Dept. — Yellow

Owner - Blue



COPIES:

White & Green - DEP

#### New Jersey Department of Environmental Protection Division of Water Resources

#### **MONITORING WELL RECORD**

		Wel	Permit No.	26 . 2	5338
		Atla	s Sheet Coordi	inates	: 31 : 697
OWNER IDENTIFICATION - Owner	AMERADA HESS(POR	T READIN	<u> </u>		
	HESS PLAZA				
City	WOODERLIDGE		State NJ		Zip Code
WELL LOCATION - If not the same as	owner olease nive addre	ee Ou	nor's Wall No	SDS_8 (6	2DC_1)
					<del></del>
County Address		RIDGE TW	?	_ LOCINO	1 760-I
			_		
TYPE OF WELL (as per Well Permit Ca					ed 6 / 06 / 91
Regulatory Program Requiring Well					
CONSULTING FIRM/FIELD SUPERVIS	SOR (if applicable)	Amera	ida Hess	<del></del>	Tele. # <u>908750-6000</u>
WELL CONSTRUCTION		Depth to	Depth to	Dia ata -	
Total depth drilledft.		Top (ft.)	Bottom (ft.)	Diameter (inches)	Type and Material
Well finished to15_ ft.		[From la	nd surface]	(	
i	Inner Casing	+2	5'	2"	PVC
Borehole diameter:  Top <u>8</u> in.	Outer Casing				
Bottom 8 in.	(Not Protective Casing)	NA	NA	NA	
	Screen (Note slot size)	5'	15'	2"	PVC Slot .010
Well was finished: X above grade	Tail Piece	NA	NA	NA	
	Gravel Pack	3'	1.51	8"	# 1 O1
If finished above grade, casing height (stick up) above land		<del>                                     </del>	15'	_	# 1 Gravel
surface 2 ft.	Annular Seal/Grout	1'	3'	8"	Cement
Was steel protective casing installed?	Method of Grouting				
Yes X No		·		(0	
Static water level after drilling 2 ½	ft.	GE	OLOGIC LOG	geophy	s of other geologic logs and/or ysical logs should be attached.
Water level was measured using <u>M</u>	Scope				
Well was developed forhou	rs at <u>2+</u> gpm				
Method of development Submersit	ole PUmp		0'-15' dark	silt and	sand
Was permanent pumping equipment in	stalled? 🔲 Yes 🏿 No	。			
Pump capacity <u><b>NA</b></u> gpm					
Pump type: NA					
Drilling Method Stem AUger					
Drilling Fluid <u>NA</u> Type	of Rig MObile B-5	7			
Name of Driller <u>Earl Hauge</u>			3 TO <b>O</b>		
Health and Safety Plan submitted?	_ Yes				
Level of Protection used on site (circle of	one) None D C`B A				
N.J. License No. <u>1130</u>	KATIDANIMANINAT TADITI	1 Thr The			
Name of Drilling Company	VIRONMONTAL DRIL	aarti, INC	-		
I certify that I have drilled the above State rules and regulations.  Driller's Signa	Lola	cordance wi	ith all well per	·	ments and all applicable

Canary - Driller

Pink - Owner

Goldenrod - Health Dept.



# New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp (For Department use only)

	(For Department use only)
SECTION A. SITE NAME AND LOCATION	
Site Name: Hess Former Port Reading Complex	
List all AKAs:	
Street Address: 750 Cliff Road	
Municipality: Township of Woodbridge	(Township, Borough or City)
County: Middlesex	Zip Code: 07064
Program Interest (PI) Number(s):	Case Tracking Number(s):
SECTION B. WELL OWNER AND LOCATION	
1. Name of Well Owner	
Well Location (Street Address)	
Well Location (Municipal Block and Lot)     Block#	Lot #
SECTION C. WELL LOCATION SPECIFICS	
Well Permit Number (This number must be permanently affixed)	ed to the well casing): 2600025338
2. Site Well Number (As shown on application or plans): SP-1	to the wear sacring).
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second	
Latitude: North 40°33'42.17"	Longitude: West 74°14'30.29"
4. New Jersey State Plane Coordinates NAD 83 datum, US surv	
North 629634	East 563875
5. Elevation of Top of Inner Casing (cap off) at reference mark (	nearest 0.01'); 8.95
Elevation Top of Outer casing: 9.19 Elevation	ation of ground: 9.17 (PAVE)
Check one: ⊠ NAVD 88 ☐ NVGD29 ☐ On Site Da	atum
6. Source of elevation datum (benchmark, number/description at here, assume datum of 100', and give approximated actual ele	
BENCHMARK: NJTP PISCATAWAY CORPS ARP ELEV.= 109.56' (NAVD 88 DATUM)	
7. Significant observations and notes:	
×	
SECTION D. LAND SURVEYOR'S CERTIFICATION	SEAL
I certify under penalty of law that I have personally examined and am information submitted in this document and all attachments and that, those individuals immediately responsible for obtaining the informatio submitted information is true, accurate and complete. I am aware that penalties for submitting false information including the possibility of firm	based on my inquiry of n, I believe the at there are significant
Professional Land Surveyor's Signature:	Date 12/21/2017
Surveyor's Name: Steven D. Parent	License Number: 24GS03626900
Firm Name: DPK Consulting, LLC	Certificate of Authorization #: 24GA28042200
Mailing Address 220 Old New Brunswick Boad Suite 201	Solutions of Authorization #. 219.120012200
City/Town: Piscataway State	New Jersey Zip Code: 08854
Phone Number 732.764.0100 Ext.:	Fax: 732.764.0990



COPIES:

Water Allocation — White and Pink

Mail to Water Allocation CN 029

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

2425 338 2625 339 2625 340

(908 750-6000)

Driller -- White WELPMT 070 1156

Permit No. \_\_

### **MONITORING WELL PERMIT**

PORT Reading, NJ. 07064  DOCATION OF WELL(S)  Location of Well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  State Atlas Map No. 26  Woodbridge  Middlesex  State Atlas Map No. 26  No Montroring Wells, Recovery Wells, OR PEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PUPLICANT, PREASE ROICATE WHY THE WELLS ARE BEING INSTALLED.  This Spect for Approxy Stamp Well. First Spect for	VALID O	NLY AFTER APPROVA	L BY THE D.I	COOF	3. مانه # D	31.697
Name of Facility  Port Reading Refinery  Address  750 Cliff Road  Port Reading, NJ 07064  Top of Well  T	OwnerAmerada Hess (Port Reading Co	orp) Driller	Environme	ental Dri	ling Inc.	
Name of Facility Port Reading Refinery   Dander   2   notes   Depth of Mat(s)   12   following   12   following   12   following   13   following   14   following   14   following   14   following   15   follow	Address Hess Plaza	Addres	s 328 Staffe	ord Forge	Rd.,	
Address 750 Cliff Road	Woodbridge, NJ 07095	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	West Cree	k, NJ 08	3092	
Address 750 Cliff Road Port Reading, NJ 07064 See See See See See See See See See Se	Name of FacilityPort Reading Refine	Diameter				12 -
PORT Reading, NJ 07064    The Special Properties   Pleasure   Plea	Address 750 Cliff Road	<del></del>		Inches		
Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  **Middlenex**  **Middlenex**  **An a name and/or number on the sketch.**  **PICANT PLEASE INDICATE WHY THE WELLS, OR PREZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PRICANT PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED.**  **Spill Fund Case**  **CERCIA (Superfund) Size**  **GRCA Size**  **Underground Storage Tank**  **NPDES Municipal Discharge Permit*  **NPDES Municipal Discharge Permit*  **Div Hazardous Waste Mgmt. Enforcement Case**  **Div. Water Resources Enf	Port Reading, NJ 07064	Type of \	Well	3 ometer	If Yes, give	pump
This space for Apperoral Stamp No.  26  Niddlesex  State Atlas Map No.  26  Spill  Spi		LOCATION OF WEL	L(S)			
State Atlas Map No. 26  ## 0 34 / 0 34 / 0 34 / 0 56 / 0 5		Diaw				
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1-1036 1-4-91 House 112	EE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTA COMPILANCE WITH N.J.S.A. 58:4A-14, application is made to	uning to this permit. Or a permit to drill a well as	described abov	e. /		
le 6-7-7/ Signature of Driller C. License # //30	1-4-41	Cianature of Dailler	8.0	Tana	e	· 1/30

Signature of Owner

Health Dept. — Yellow

Owner - Blue



## New Jersey Department of Environmental Protection Division of Water Resources

#### **MONITORING WELL RECORD**

-			/ell Permit No			
		Α	tlas Sheet Coord	inates <u>2</u>	<u>6</u> : <u>31</u>	_:_697
OWNER IDENTIFICATION - Owner	AMERADA HESS(PO	RT RKAD	TNG			
Address	HESS PLAZA					
City	WOODERLDGE		State N	J	Zip Code	07075
WELL LOCATION - If not the same as	owner please give addre	ss. (	Owner's Well No.	3P3-	(SPS-2)	_
County Middlesex	_ Municipality _ <b>NOCES</b>	RIDGE !	TMP	_ Lot No	B	lock No
Address 750 Cliff Rd., Port	Reading, NJ					
TYPE OF WELL (as per Well Permit Ca	ategories)		Date w	ell complete	ed <u>6 / (</u>	06 / 91
Regulatory Program Requiring Well	RCRA		Case I.	D. #		
CONSULTING FIRM/FIELD SUPERVI	SOR (if applicable)A	merada	Hess		Tele. #	908 750-600
WELL CONSTRUCTION				1		
		Depth to	•	Diameter	Time	and Mataulat
Total depth drilledft.		Top (ft.	) Bottom (ft.) land surface]	(inches)	туре	and Material
Well finished to15_ ft.	Inner Casing					
Borehole diameter:		+2	5'	2"	PVC	
Top <u>8</u> in.	Outer Casing (Not Protective Casing)	NA	NA	NA		
Bottom 8 in.	Screen					
Well was finished: X above grade	(Note slot size)		15'	2"	PVC Slot	.010
I flush mounted	Tail Piece	NA	NA	NA		
If finished above grade, casing	Gravel Pack	3'	15'	8"	# 1 Grave	el
height (stick up) above land	Annular Seal/Grout	٥.				
surfaceft.		0'	3'	8"	Cement	
Was steel protective casing installed?	Method of Grouting					
YesX XX No	. 1			(Copie	s of other ge	ologic logs and/or
Static water level after drilling	·		GEOLOGIC LOG	geoph	ysical logs sl	rould be attached.)
Water level was measured usingM_	-	1				
Well was developed forhou			0'-15' dark s	ilt and sa	nd	
Method of development <u>Submersi</u>	ble Pump	<del></del> [				
Was permanent pumping equipment in	stalled? 🔲 Yes 🗶 No					
Pump capacity NA gpm						
Pump type: NA						
Drilling Method Stem Auger						
	of Rig Mobile B-57	<u>'</u>				
Name of Driller <u>Earl Hauge</u>						
Health and Safety Plan submitted?	Yes LNo 、					
Level of Protection used on site (circle of	one) None D C B A					
N.J. License No. <u>1130</u>	WIRONMENTAL DRILL	LINE THE	r:			
maine or Drilling Company						
I certify that I have drilled the above State rules and regulations.	e-referenced well in acc	ordance	with all well per	mit require	ments and a	all applicable
otato futes and regulations.			,			
Driller's Sign	ature Mad	ial			ate	7/12/91
•					<del></del>	
COPIES: White	& Green - DEP Canar	y - Driller	Pink - Owner	Goldenro	d - Health De	pt.



# New Jersey Department of Environmental Protection Site Remediation Program

### Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

				<u> </u>	or Department use only)
SEC	CTION A. SITE NAME AND LOCATION				
Site	Name: Hess Former Port Reading Complex	ζ			
List	all AKAs:				
Stre	et Address: 750 Cliff Road				
Mun	nicipality: Township of Woodbridge		(Township, Boroug	gh or City)	
Cou	nty: Middlesex		Zip Code: 07064		
Prog	gram Interest (PI) Number(s):		Case Tracking i	Number(s): _	
SEC	CTION B. WELL OWNER AND LOCATION				
1.	Name of Well Owner				
2.	Well Location (Street Address)				
3.	Well Location (Municipal Block and Lot)	Block#		Lot#	
SEC	CTION C. WELL LOCATION SPECIFICS	Y-70,			
1.	Well Permit Number (This number must be per	manently affixed	to the well casing): 2	2600025339	
	Site Well Number (As shown on application or	•			
	Geographic Coordinate NAD 83 to nearest 1/10	' /			
	Latitude: North 40°33'39.23"		Longitude: West 74	°14'28.32"	
4.	New Jersey State Plane Coordinates NAD 83 of	datum, US surve	-		
	North 629337	,	East 564027		
5.	Elevation of Top of Inner Casing (cap off) at ref	ference mark (n	earest 0.01'): 10.18		, , , , , , , , , , , , , , , , , , ,
	Elevation Top of Outer casing: 10.37	•	on of ground: 10.36 (P	AVE)	
	Check one: ⊠ NAVD 88 ☐ NVGD29	On Site Date	ım 🗌 Other		
6.	Source of elevation datum (benchmark, numbe here, assume datum of 100', and give approxin	er/description and	d elevation/datum). If a	an on-site datu	um is used, identify
	BENCHMARK: NJTP PISCATAWAY CORPS ARP	nated actual elev	ation (referencing NA)	VD 66).	
7.	ELEV.= 109.56' (NAVD 88 DATUM) Significant observations and notes:				
,.	organicant observations and notes.				
SEC	CTION D. LAND SURVEYOR'S CERTIFICATI	ON		SEAL	
	tify under penalty of law that I have personally ex		amiliar with the	SEAL	
	mation submitted in this document and all attachr				
subr	e individuals immediately responsible for obtainin nitted information is true, accurate and comple <del>te.</del>	am aware that	there are significant		
pena	alties for submitting false information including the	possibility of fine	and imprisonment.		
	essional Land Surveyor's Signature:				Date 12/21/2017
	veyor's Name: Steven D. Parent	/	Licer	nse Number:	24GS03626900
Firm	Name: DPK Consulting, LLC		Certificate of Aut	horization #:	24GA28042200
Mail	ing Address 220 Old New Brunswick Road	Suite 201			
City	/Town: Piscataway	State	New Jersey	Zip Co	de: 08854
Pho	ne Number 732.764.0100	Ext.:		ax: <u>732.76</u>	4.0990



COPIES:

Water Allocation — White and Pink

Mail to Water Allocation CN 029

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES TRENTON, N.J.

2425 338 2625 339 2625 340

(908 750-6000)

Driller -- White WELPMT 070 1156

Permit No. \_\_

### **MONITORING WELL PERMIT**

PORT Reading, NJ. 07064  DOCATION OF WELL(S)  Location of Well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  State Atlas Map No. 26  Woodbridge  Middlesex  State Atlas Map No. 26  No Montroring Wells, Recovery Wells, OR PEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PUPLICANT, PREASE ROICATE WHY THE WELLS ARE BEING INSTALLED.  This Spect for Approxy Stamp Well. First Spect for	VALID O	NLY AFTER APPROVA	L BY THE D.I	COOF	3. مانه # D	31.697
Name of Facility  Port Reading Refinery  Address  750 Cliff Road  Port Reading, NJ 07064  Top of Well  T	OwnerAmerada Hess (Port Reading Co	orp) Driller	Environme	ental Dri	ling Inc.	
Name of Facility Port Reading Refinery   Dander   2   notes   Depth of Mat(s)   12   following   12   following   12   following   13   following   14   following   14   following   14   following   15   follow	Address Hess Plaza	Addres	s 328 Staffe	ord Forge	Rd.,	
Address 750 Cliff Road	Woodbridge, NJ 07095	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	West Cree	k, NJ 08	3092	
Address 750 Cliff Road Port Reading, NJ 07064 See See See See See See See See See Se	Name of FacilityPort Reading Refine	Diameter				12 -
PORT Reading, NJ 07064    The Special Properties   Pleasure   Plea	Address 750 Cliff Road	<del></del>		Inches		
Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.  **Middlenex**  **Middlenex**  **An a name and/or number on the sketch.**  **PICANT PLEASE INDICATE WHY THE WELLS, OR PREZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE PRICANT PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED.**  **Spill Fund Case**  **CERCIA (Superfund) Size**  **GRCA Size**  **Underground Storage Tank**  **NPDES Municipal Discharge Permit*  **NPDES Municipal Discharge Permit*  **Div Hazardous Waste Mgmt. Enforcement Case**  **Div. Water Resources Enf	Port Reading, NJ 07064	Type of \	Well	3 ometer	If Yes, give	pump
This space for Apperoral Stamp No.  26  Niddlesex  State Atlas Map No.  26  Spill  Spi		LOCATION OF WEL	L(S)			
State Atlas Map No. 26  ## 0 34 / 0 34 / 0 34 / 0 56 / 0 5		Diaw				
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le 6-7-7/ Signature of Driller C. License # //30	1-4-41	Cianature of Dailler	8.0	Tana	e	· 1/30

Signature of Owner

Health Dept. — Yellow

Owner - Blue



## New Jersey Department of Environmental Protection Division of Water Resources

#### MONITORING WELL RECORD

		We	Il Permit No	26	25340
		Atla	as Sheet Coord	inates 2	5 : 31 : 697
OWNER IDENTIFICATION - Owner	AMERADA HESS(POR	T READIN	G		
Address	HRSS PLAZA				<del>-</del>
City	<b>林大星景景(1)大海</b>	-			Zip Code07075
			Otate		Zip Code
WELL LOCATION - If not the same as	owner please give addre	ss. Ov	vner's Well No.	SPS-10	) (SPS-3)
CountyMiddlesex	Municipality WOODE	RIDGE TW	P	_ Lot No	1 Block No. 760
Address 750 Cliff Road, Po	rt Reading NJ			·····	
TYPE OF WELL (as per Well Permit Ca	tegories PTR/CPSTTGR		Date v	vell complete	ad 6 / 06 / 91
Regulatory Program Requiring Well					
CONSULTING FIRM/FIELD SUPERVIS	COD (if applicable)	AMerada	Hess		Tele. # 908 750-60
	oon (ii applicable)				1816. #
WELL CONSTRUCTION		Depth to	Depth to	Diameter	
Total depth drilled 15 ft.		Top (ft.)	` '		
Well finished to15ft.		[From la	and surface]	<u> </u>	
Borehole diameter:	Inner Casing	+2	5'	2"	PVC
Top 8 in.	Outer Casing	NA	NA	NA	
Bottom 8 in.	(Not Protective Casing) Screen	- 1122		1111	
	(Note slot size)	5'	15'	. 2"	PVC Slot .010
Well was finished: X above grade	Tail Piece	NA	NA	NA	
flush mounted			7417	I MA	
If finished above grade, casing	Gravel Pack	3.	15'	8"	# 1 Gravel
height (stick up) above land surface2ft.	Annular Seal/Grout	0'	3'	8"	Cement
Was steel protective casing installed?	Method of Grouting	Gravit	v	-	
Yes No					
Static water level after drilling 2½	ft	GI	EOLOGIC LOC	(Copie	s of other geologic logs and/o
Water level was measured using $M$				geoph	ysical logs should be attached
Well was developed forhou					
Method of development <u>Submersi</u>		ام	.151 do=1#	14 and	٠.
		i i	-15' dark si	it and sai	ıa
Was permanent pumping equipment in	stalled? LYes XNo	·			
Oump capacity NA gpm					
Pump type: <u>NA</u> Drilling Method Stem AUger					
<b>79</b> 4	of Rig <u>Mobile B-57</u>				
Name of Driller Earl Hauge	7.				
Health and Safety Plan submitted?	lYes Li¶e° ( ₹3	IJ			
Level of Protection used on site (circle of		]			
N.J. License No. 1130	IRONMENTAL DRILL	ING, INC.			•
Name of Drilling Company		<b>L</b>			
certify that I have drilled the above	referenced well in acc	ordance w	ith all well per	mit require	ments and all applicable
State rules and regulations.	0 1	,			
			1	_	
Driller's Signa	ature A	uge			Date <u>7/12/91</u>
COPIES: White	& Green - DEP Canar	y - Driller	Pink - Owner	Goldan	d - Health Dept.



### New Jersey Department of Environmental Protection Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp or Department use on

		(For Department use only)
SECTION A. SITE NAME AND LOCATION		
Site Name: AMERADA HESS CORPORATION		
List all AKAs: BUCKEYE PORT READING TERMINAL LLC		
Street Address: 750 CLIFF ROAD		
Municipality: WOODBRIDGE TOWNSHIP (PORT READING	(Township, Boroug	th or City)
County: MIDDLESEX	Zip Code:	07064
Program Interest (PI) Number(s): 006148	Case Tracking Number(s)	
SECTION B. WELL OWNER AND LOCATION		
Name of Well Owner:AMERADA HESS CORPORATION		
Well Location (Street Address): 750 CLIFF ROAD		
3. Well Location (Municipal Block and Lot):	Block #: 760.02 Lot #:	: 2
SECTION C. WELL LOCATION SPECIFICS		
1. Well Permit Number (This number must be permanently affixed to t	the well casing): 2600025340	
<ol><li>Site Well Number (As shown on application or plans):</li></ol>	SP-3	
3. Geographic Coordinates NAD 83 to nearest 1/100 of a second:		
Latitude: North: 40 ° 33 ′ 40.613 ″	Longitude: West: 74 ° 14 ' 24.471	"
4. New Jersey State Plane Coodinates NAD 83 datum, US survey fee		
N	East: 564323.96	
5. Elevation of Top of Inner Casing (cap off) at reference mark (neare		
Elevation Top of Outer casing: 9.60 Elevation of		
Check one: NAVD 88 NGVD 29 On Site Datum		
6. Source of elevation datum (benchmark, number/description and ele	-	ed identify
here, assume datum of 100', and give approximated actual elevation	n (referencing NAVD 88)	su, identity
NGS "NJTP" (NAD83-2011) (EPOCH 2010.0000) (GEOID 12A)		
NAVD 88	,	
7. Significant observations and notes:		
ON LANDS OF N/F BUCKEYE PORT READING TERMINAL, L	ic ,	
·		1666
SECTION D. LAND SURVEYOR'S CERTIFICATION	SEAL	L'andreas
I certify under penalty of law that I have personally examined and am f	familiar with the	
information submitted in this document and all attachments and that, b	pased on my inquiry of	
those individuals immediately responsible for obtaining the information	. I believe the	J., " >
submitted information is true, accurate and complete. I am aware that		
penalties for submitting false information including the possibility of fine	e and imprisonment.	
Professional Land Surveyor's Signature:		December 9, 2014
Surveyor's Name: James M. Stewart, PLS		Number: 24GS02610800
	roject #: 1600 Certificate of Author	rization #: 24GA28150900
Mailing Address: 2837 Ogden Avenue		
City/Town: Bensalem		Zip Code: 19020
Phone Number: 215-268-7988	Ext: N/A Fax: 215-2	268-7966